

NEW GENERA AND SPECIES (MOSTLY AUSTRALASIAN) OF BLATTIDAE,  
WITH NOTES, AND SOME REMARKS ON TEPPER'S TYPES.

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(Thirty-three Text-figures.)

[Read 24th June, 1925.]

Recently the good fortune was mine to have in my hands for determination at the one time an unusually large amount of Blattid material, which included the collections of the old Macleay Museum in Sydney, the balance of the Australian Museum collection, some from the South Australian Museum, the whole of the Queensland Museum collection, the Blattidae collected in Australia in 1910-1913 by Dr. Mjöberg and sent to me by Dr. Sjöstedt, the Director of the Stockholm Museum, together with some fresh material of my own. It soon became evident that an examination of Mr. J. G. O. Tepper's Types was most advisable, and, through the courtesy of the Director of the South Australian Museum, I was able to devote a brief holiday to this end, although the time at my disposal was too short to permit of a complete study of them.

The present paper contains proposals for the erection of three new genera, *Elfridaia*, *Tryonicus*, and *Ancaudellia*; with a suggestion for a fourth, *Cutiloidea*; and descriptions of twenty-five species considered to be new to science. With reference to several of Tepper's types notes have been added, which, it is hoped, will be of service in clearing up some doubtful questions; and an attempt has been made to explain some of the peculiarities of structure of the *Panesthiinae*, most strongly evidenced in the earth-digging group.

There are in Australia many undescribed species, chiefly of the subfamily *Pseudomopinae*, and a great deal of work on Australian cockroaches remains to be done. This I had hoped to accomplish, but on account of a breakdown in health, and the changes entailed, it was necessary to cease all regular entomological work, with little hope of taking it up again systematically. My collection was purchased by the Queensland Government, and is now in the Queensland Museum; this paper was practically completed before the transaction took place, but I have altered the numbers of specimens referred to as in my private register to those of the Queensland Museum Register, and all references through the paper to "Coll. auct." should now read Coll. Q. Mus., and to those who entrusted specimens to me I wish to express my regret at my inability to complete the determination of them as I had hoped.

For the drawings for Text-figures Nos. 6 to 11, 13 to 15, 29 to 31, and 33 I have to acknowledge the generous aid of Dr. C. Anderson, of the Australian Museum, and his artist assistant, Miss Joyce K. Allan; and for the drawings for all the others my grateful thanks are due to Mr. Henry Tryon, the distinguished Government Entomologist of Queensland, and his artist assistant, Mr. Helmsing, for without the kindly assistance of these two gentlemen the illustrating of this paper would have had to be abandoned.

The figures, unless the magnification is specified, are much enlarged, but not to a uniform scale.

Subfamily ECTOBIINAE.

Genus ESCALA Shelford.

ESCALA CIRCUMDUCTA Walk.

*Blatta circumducta* Walk., *Cat. Blatt. Brit. Mus.*, 1869, Suppl. p. 142.—*Loboptera circumcincta* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 37.—*Ischnoptera annulata* Tepp., loc. cit., p. 51.

In a paper of mine (1914) in the *Victorian Naturalist* will be found some notes on this species, but only recently have I had an opportunity to examine Teppers types, and this examination confirms the opinion then expressed, that Teppers species was the ♀ of Walkers *Blatta circumducta*. Teppers types are on one pin, labelled by himself as "Types ♂ and ♀" and "Gilbert River, S. Austr., Sept., '87." Both specimens are ♀, and the vestigial tegmina have disappeared from the lower specimen, the upper one retaining that on the right side, and as Gilbert River is not his type locality this appears to be another instance (Shaw, 1916) where Teppers failed in 1915 to recognize the types from which he wrote his description in 1893.

This species is common in Australia, ranging from Western Australia (Shelford, as *Loboptera circumcincta* Tepp., in *Faun. Sudwest. Austr.*, 1909), through South Australia, Victoria and New South Wales to Queensland. The colour varies somewhat, some specimens in the authors collection from New South Wales and Victoria being pale and showing the brown pronotal marking as a ring enclosing a pale disc, whilst others from Queensland have the general colour much darker and the pronotum almost entirely brown. The ootheca is carried by the female with the suture lateral, the sutural margin being convex and considerably longer than the ginglymoid margin, the divisions for the eggs to the number of about eleven on each side being plainly marked. The eggs do not lie opposite one another, but those of one side opposite the intervals between those of the other side, and each egg is indicated by one of the serrations of the sutural margin. There is little doubt that identical with this species is Teppers *Ischnoptera annulata*, under which further notes will be found.

ESCALA LONGIUSCULA Walk.

*Blatta longiuscula* Walk., *Cat. Blatt. Brit. Mus.*, 1869, Suppl. p. 143.—*Ischnoptera obscura* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 54.

Tepper described *obscura* from a ♀, but the three specimens indicated by him in 1915 as type material are ♂ of *E. longiuscula* Walk.

Subfamily PHYLLODROMIINAE.

Genus ISCHNOPTERA Burmeister.

ISCHNOPTERA PARALELLA Tepp.

*Ischnoptera paralella* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 53.

Tepper described this species from a ♀ from Kangaroo Island, and had before him at the same time a ♂ from Beverley, W.A., but I think he must have mistaken it for another ♀ as, when indicating his types in 1915, he labelled it "Cotype" and at the same time labelled as "Type ♂" a specimen obtained by Zeitz from a house in Adelaide in 1914. One of these ♂ should be selected as allotype and described.

## ISCHNOPTERA ANNULATA Tepp.

Tepper (1893) described this as from a ♀ only, but in the South Australian Museum there are two ♂ specimens marked by Tepper as his Types. Both of these should be referred to the genus *Escala* Shelf. and, as one of these is labelled "Victoria 3.95," it cannot be his type of 1893, but is probably one of the specimens sent to him by the National Museum, Melbourne, and referred to as No. 4 in his paper of 1895. The other, which I believe to be his type of *annulata*, is really a ♂ of *Escala circumducta* Walk.

## ISCHNOPTERA OBSCURA Tepp.

= *Escala longiuscula* Walk. (q.v.).

## Genus LOBOPTERA Brunner von Wattenwyl.

## LOBOPTERA CIRCUMCINCTA Tepp. (1893).

Tepper's types, ♂ and ♀, in the South Australian Museum are both on one pin and, as was presumed by me (1914), are both ♀ of *Escala circumducta* Walk. A careful examination in December, 1922, showed that the upper specimen, which Tepper may have taken for the ♂, has a lobiform tegmen left on one side; and the lower specimen, while showing clear traces of having originally possessed lobiform tegmina, had then lost them both.

## LOBOPTERA DUODECEMSIGNATA Tepp. (1893).

I have examined the types in Adelaide, and, although marked ♂ and ♀, they are both female, and further material will probably show that they are the ♀ of an *Escala* Shelf. Tepper described the ♀ only, and his designating a ♂ type in 1915 was probably an error, particularly as it is the example carrying a partly extruded ootheca.

## LOBOPTERA HALMATURINA Tepp. (1893).

Tepper's types, ♂ and ♀, are at Adelaide, also some "Cotypes." There is considerable variation in the colour and markings of the abdominal tergites, but the distinctive marks on the thoracic tergites seem to be very constant.

*New Locality.*—Victoria: Healesville, 1914 (auct.).

## LOBOPTERA TRICOLOR Tepp.

*Loboptera tricolor* Tepp., *Horn Exped. Centr. Aust.*, Vol. 2, 1896, 357.

In the South Australian Museum are two specimens labelled in 1915 by Tepper "Type of ♂" and "Type of ♀." The vestigial tegmina of the "Type of ♂" are completely separated, there are no wing vestiges, and the subgenital lamina is large and bears one style on the left side. The specimen labelled "Type of ♀" is a young male larva, obviously an oversight of Tepper's when selecting his types in 1915.

## Subfamily EPILAMPRINAE.

## Genus ELFRIDAIA nov.

The vertex of the head in both sexes exposed. Pronotum anteriorly truncate, posteriorly straight. Sexes similar. Tegmina vestigial, lateral, squamiform. Wings absent. A spiracular tube projecting on either side of the base of the supra-anal lamina. Subgenital lamina of the ♂ with two styles. Posterior metatarsus about as long as the remaining segments combined, biserially spined beneath

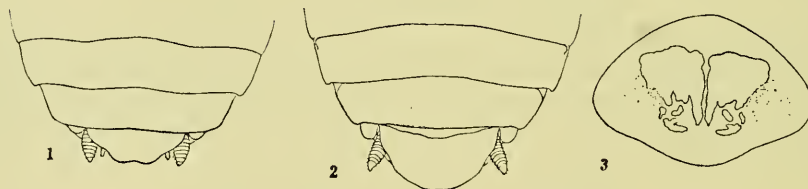
at the base, pulvillus extending towards the base of the segment; remaining pulvilli large with a prominent apical spine on each side; arolia moderately

large. Genicular spines 0.1.1. Apical spines  $\frac{1}{1} \cdot \frac{1}{1} \cdot \frac{1}{0}$ .

*Note*.—Near *Opisthoplatia* Brunner v.W., but the vertex is exposed, and there are no vestigial wings.

*ELFRIDAIA EBOMAE*, n. sp. Text-figs. 1 and 2.

Above rufo-castaneous. Head nigro-castaneous; ocelliform spots small, testaceous; cheeks and mouth parts rufo-testaceous; antennae at least as long as the body. Pronotum finely punctate, the anterior margin truncate, exposing the vertex, posterior margin straight. Tegminal vestiges paler, punctate, squamiform, apex extending to about half-way across the metanotum. Metanotum with the posterior margin medially slightly produced, the postero-lateral angles more produced. Posterior borders of the meso- and metanotum and of abdominal tergites 1 to 7 with a row of indistinct longitudinal raised vittae. Postero-lateral angles of abdominal tergites 1 to 6 slightly backwardly produced, that of tergite 7 not produced. A tube terminating in a spiracle projecting from beneath it at either side.



Text-fig. 1. *Elfridaia ebomae* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

Text-fig. 2. *Elfridaia ebomae* Shaw. ♀. Apex of abdomen, dorsal aspect. Drawn from the allotype.

Text-fig. 3. *Calolampira candidula* Shaw. ♂. Pronotum, showing outline of macula of disc. Drawn from the holotype.

Supra-anal lamina rounded, slightly notched; that of the ♂ (Text-fig. 1) is membranous, whitish, and not so ample as that of the ♀ (Text-fig. 2), which is almost semicircular and castaneous. Subgenital lamina of the ♂ small, rounded, styles situate in a well defined notch; of the ♀ ample, rounded. Beneath rufo-testaceous, darker laterally and distally. Legs with the coxal process (Shaw, 1922) separated from the extremity of the coxal ridge (Shaw, 1922) by a distinct notch; posterior tibia with the spines on the outer aspect triseriately arranged; posterior metatarsus about as long as the remaining segments combined, pulvillus produced towards the base for about three-fourths of the length of the segment in the ♂, not so far in the ♀, biseriately spined beneath, the series being longer in the ♀. Arolia moderately large.

*Ootheca*.—Membranous, flattened, suture carried laterally, with about fourteen divisions on each side.

*Length*.—♂, 21 mm.; ♀, 22 mm.

*Type material*.—Holotype ♂, No. 0/2878. Coll. Q. Mus. Allotype ♀, No. 0/2878a. Coll. Q. Mus. Paratypes, 7 ♂, 20 ♀, and 3 oothecae. Coll. Q. Mus.

*Habitat*.—*Papua*: Samarai (Holotype, Nov., 1914), Eboma Island (remainder of type material, 1914-15) (Auct.).

#### Genus CALOLAMPRA Saussure.

##### CALOLAMPRA CANDIDULA, n. sp. Text-fig. 3.

♂. Creamy-white with the pronotum, face and legs a little yellower. Antennae, of rather more than half the body length, with about the proximal one-fourth stramineous, the remainder dark greyish; ocelliform spots white, depressed, larger than the antennary sockets.

Pronotum (Text-fig. 3) with the disc occupied by a prominent black macula, bilaterally symmetrical, and in form suggestive of a swallow-tail butterfly; posterior margin bluntly produced and in two paratypes with a few dark longitudinal striae. Tegmina and wings extending considerably beyond the apex of the abdomen; tegmina with a few small brown maculae situate on the veins. Supra-anal lamina subquadrate, with obtuse angles; cerci long, slender. Subgenital lamina roundly produced, slightly emarginate, bearing two styles. Legs with the coxal processes pearly white; femora not strongly armed; genicular spines 0.1.1; posterior metatarsus longer than the remaining segments combined, biserially spined beneath for its whole length, and with a few spines on the distal half of each lateral border; pulvillus apical; pulvilli of the remaining segments large, with one or two spines at each side; arolia present.

*Length*.—27.5-32.0 mm.; tegmen 23.5-28.0 mm.; body 22.0-23.0 mm.

*Type material*.—Holotype ♂, No. 0/2880. Coll. Q. Mus. Four paratypes, Austr. Mus., S. Austr. Mus., and Q. Mus.

*Habitat*.—*Queensland*: Bellevue, E. C. Sturtridge, 1917 (Holotype); Aramac, F. Bradshaw, Aug., 1920. *South Australia*: N.E. Corner, F. Parsons.

*Note*.—This species is near *C. aspera* Tepp., but is much larger, and the black macula of the pronotum is much more prominent. This macula is seen in other species of the genus, and is very constant in form. In *C. irrorata* Fabr. it is well marked in the paler, while obscure in the darker examples. *C. aspera* Tepp., though pale, has the macula obscure, and in the present species it is dense and much more strikingly prominent. One of the paratypes is rather darker than the holotype, and beneath is stramineous with brownish mottling.

##### CALOLAMPRA ATRA Tepp.

*Epilampra atra* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 65.

Tepper (1893) described both sexes, and in 1915 selected two specimens as his types and so labelled them. Both these specimens are ♀, as also is a "Cotype."

#### Subfamily BLATTINAE.

##### Genus EUZOSTERIA Shelford.

##### EUZOSTERIA PURPURASCENS, n. sp.

♀ closely allied to *E. patula* Walk., but rather larger, much smoother, and of quite different colouring. The rugosity of *patula* is replaced by minute punctures, with a coarse shagreening laterally; and the postero-lateral angles of the thoracic tergites are more produced. The postero-lateral angles of the fifth abdominal tergite are not backwardly produced, those of the sixth tergite scarcely, and those

of the seventh tergite slightly and bluntly produced, not acuminate. Dorsal colour purple-bronze, except the discs of the thoracic tergites which show a green sheen, most marked laterally; the flavid margins of *patula* Walk. are replaced by the purple-bronze; all the tergites to the seventh abdominal bordered posteriorly with yellow, the discs of the thoracic tergites being also bordered laterally by a narrower yellow line; pronotum with the prominent triangular disc completely surrounded by a yellow line. Ventral colour generally rufo-castaneous; thoracic sternites yellow, with numerous small brown maculae; abdominal sternites distally yellowish, and laterally with a green sheen. Legs yellowish beneath, purple-bronze above, spines black; coxal ridges wide; tibiae on their outer aspect flattened, biserially spined. Subgenital valves of the usual Blattine form.

*Length*.—38.0 mm.

*Type material*.—Holotype ♀, S. Aust. Mus.

*Habitat*.—*Northern Territory*: Roper River, N. B. Tindale.

*Note*.—This very beautiful species I place in the genus *Euzosteria* Shelford, as it is closely allied to *E. patula* Walk., but, if Shelford's character of the biserially spined outer aspect of the tibia is distinctive of *Polyzosteria*, then both species should be in this genus. In both, the tibiae are more quadrangular than rounded, and, except for a single median spine at each end of the outer aspect, the spines are in two rows only. These two median spines are to be seen in *P. limbata* Burm. and in other species of *Polyzosteria*. The more definitely reflected lateral margins of the pronotum appear to be correlated with the more clearly defined three rows of spines, and a genus intermediate between the two may be necessary when further study has been given to the group.

#### EUZOSTERIA SORDIDA, n. sp.

♀ dull black above and below, except the discs of the abdominal sternites which are castaneous and shining; the dorsal surface covered with prominent yellow folds or tubercles, being rugose between the tubercles. Head brownish-black, punctate; antennae brown, basal segments darker; palpi yellow. Margins of the thoracic tergites strongly reflected, yellowish with numerous blackish dots and maculae, the latter appear on the inner aspect of the reflected portion. Postero-lateral angles of the fifth abdominal tergite slightly, of sixth more, and of seventh strongly produced backwards. Supra-anal lamina rounded, slightly emarginate, rugose and tuberculate; subgenital lamina with valves of usual Blattine form. Coxae dull black, coxal borders and coxal processes yellow; femora castaneous; tibiae and tarsi yellow with black spines, which on the outer side of the tibiae are triserially arranged. Claws and arolia brown.

*Length*.—26.0 mm.

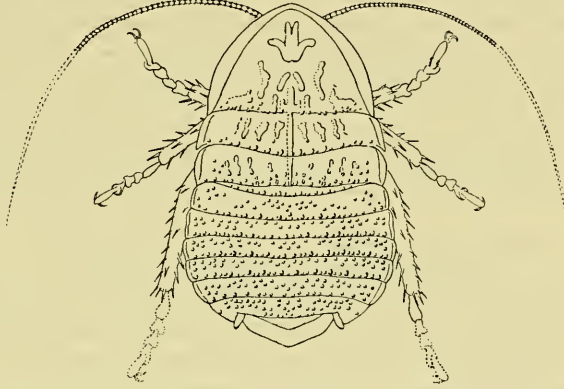
*Type material*.—Holotype ♀, No. 0/2876. Coll. Q. Mus.

*Habitat*.—*W. Australia*: Beverley, F. H. du Boulay.

*Note*.—This is quite distinct from *subverrucosa* White, of which species the Hope Museum kindly gave me a specimen in 1914, and one may assume that Shelford was familiar with the type which is in the British Museum. Little or none of the metallic sheen usual in the genus is shown by this species. There are specimens in the South Australian Museum and in my collection, from South Australia.

*EUZOSTERIA TUBERCULATA*, n. sp. Text-fig. 4.

Testaceous, prominently and coarsely tuberculate, with dark fuscous or bronze-green in the hollows between the tubercles of the thoracic tergites and some splashes of the same on the abdominal tergites. Head with the vertex and frons brown or almost black, punctate, the line between the epicranial plates and the clypeus being pale and well marked; eyes very prominent; genae testaceous; palpi pale. Thoracic tergites with the lateral margins strongly reflected, pale outside; the dorsal margin of the reflected portion with a row of small brown tubercles, almost serrate; pronotum with prominent symmetrical



Text-fig. 4. *Euzosteria tuberculata* Shaw. ♀. Whole insect ( $\times \frac{2}{2}$ ). Drawn from the holotype.

tubercles (Text-fig. 4), the anterior one shaped like a *fleur-de-lys*; tubercles of the meso- and metanotum mostly sausage-shaped; of the abdominal tergites, rounded and disposed in almost regular rows. Supra-anal lamina in ♀ rounded, slightly emarginate, subtectiform, darker basally, with several coarse brown tubercles; subgenital lamina in ♀ of the usual Blattine form; cerci short, blunt, flattened, yellow. Beneath smooth, shining; visible parts of the thoracic tergites testaceous; abdominal sternites testaceous, paler at the posterior margins, and fuscous laterally. Legs fuscous; distal portions of the coxae, the knees and the whole of the tibiae and tarsi testaceous, spines black; arolia small.

*Length*.—Holotype ♀, 29.0 mm.; allotype, larval ♂, 20.0 mm.

*Type material*.—Holotype ♀, No. 0/2877; and allotype ♂, No. 0/2877a, Coll. Q. Mus. Paratypes 3.

*Habitat*.—Victoria: Mallee District, 1918 (Holotype); Lake Hattah (Allotype). South Australia: Ooldea and Murray River.

*Note*.—The projecting eyes, which are very marked in this species, bulging well beyond the general contour of the vertex and genae, are to be found also in some other species of this genus; the smoother species, with but slightly reflected margins of the thoracic tergites, having the eyes not or scarcely projecting. The subgenital lamina of the holotype only is described, the allotype ♂ being a larva. In some examples the ground colour is considerably paler than in the holotype, which is a dark specimen, the larval allotype being very pale in the ground colour, while the dark parts of the legs are almost black. The *fleur-de-lys* shaped tubercle on the pronotum seems quite distinctive of this species.

## Genus LEPTOZOSTERIA Tepper.

Tepper (1893) provisionally proposed this genus for *L. prima*, distinguishing it chiefly by the form of the supra-anal lamina of the ♂ (the only sex he knew), and by the unusual distribution of the colouring. In the following year he added another species, *L. secunda*, from a single ♀, placing it in the genus chiefly on account of the colouring, in which the two have a strong resemblance. Since then, to the genus *Platyzosteria* have been added several other species in which the supra-anal lamina departed as much or more from the usual form, and Tepper himself must have ceased to regard the colouring as diagnostic, or he would have included in the genus *zebra* and *coolgardiensis*, both pale forms with dark bands, especially as the supra-anal lamina of *coolgardiensis* ♂ is backwardly produced. I have examined Tepper's Type of *L. secunda* in the South Australian Museum, and the posterior tarsal structure is that of *Cutilia* Stål, and I have no doubt of the correctness of Shelford's opinion that the species is identical with *Cutilia triangulata* Br. v. W. (q.v.). The posterior tarsal structure of *prima* Tepp. is that of *Platyzosteria*, to which genus I think this species should be referred; and I see no reason for the retention of the genus *Leptozosteria*.

## Genus PLATYZOSTERIA Brunner v. Wattenwyl.

## PLATYZOSTERIA ARMATA Tepp. (1893).

Tepper's types in the South Australian Museum were examined by me, and his labels were reversed as to sex. This species was originally described from Western Australia, but the South Australian Museum has now more recent specimens from several localities in South Australia. It belongs to the spinose group, of which the most striking example is *ferox* Shelf., but is of a brownish castaneous colour, and Shelford's (1909) redescription was probably made from a very dark specimen. The posterior metatarsus is of the *Platyzosteria* type, and the points of difference from *P. rufofusca* Tepp. will be found under that species.

## PLATYZOSTERIA PSEUDATRATA Tepper.

*Platyzosteria pseudatrata* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 86.

There is only a single ♂, the type, in the South Australian Museum. Shelford (1909) only knew it by description and was unable to distinguish it from *P. analis* Sauss. or *P. melanaria* Erichs.; but the type does not agree with Shelford's (1909) figures of the latter, nor is it conspecific with what I recognize as *analis* Sauss., the common species in Victoria. It came from Central Australia, and appears to be allied rather to the group whose spininess finds its extreme example in *ferox* Shelf. *P. pseudatrata* is, I believe, a good species; it is apterous, but with some crumpling of the mesonotum laterally, and is very broad in proportion to its length; the 6th and 7th abdominal tergites are laterally serrate, the 7th strongly so and there are prominent spines of the supra-anal lamina; the posterior metatarsus is not long and not spined beneath.

## PLATYZOSTERIA RUFOFUSCA Tepper.

The type, a ♀, and unique, is in the South Australian Museum. Compared with *P. armata* Tepp., it is smaller, not scabrous laterally, and the lateral margins of the 6th and 7th abdominal tergites are not denticulate, but only very finely serrate. The supra-anal lamina, which appears to be slightly deformed, differs in shape, and is not strongly denticulate. The posterior metatarsus is of the *Platyzosteria* type.

## PLATYZOSTERIA SCABRELLA Tepp.

The types of ♂ and ♀ are in the South Australian Museum. The posterior metatarsi are short and unspined beneath; the 5th tarsal segment is brownish-yellow; the pale antennae show up very distinctly; and the degree of scabrousness varies in different examples, especially on the pronotum. *P. scabrella* may be taken as representing a group referred to previously by me (1922, p. 224), and the doubtful species then mentioned is here described as *P. anceps*. The little Western Australian species *P. scabrosa*, though not included in the key, is perhaps another member of this group, as may also be *P. variolosa* Bol., a species of which I have no personal knowledge. The following key may be of some service in separating the species of this group.

Key for *P. scabrella* Tepp. group.

- (2) 1. Vestigial tegmina present ..... *bicolor* Kirby.
- (1) 2. Entirely apterous.
- (6) 3. Thoracic tergites with shallow pits, not scabrous.
- (5) 4. Orange macula at antero-lateral angle of 7th abdominal tergite. *babindae* Shaw.
- (4) 5. No orange macula ..... *anceps* Shaw.
- (3) 6. Thoracic tergites scabrous.
- (8) 7. Smaller species, antennae ochreous, lateral margins of 6th abdominal tergite not serrate ..... *scabrella* Tepp.
- (7) 8. Larger species, antennae fuscous, lateral margins of 6th abdominal tergite serrate ..... *scabra* Br. v. W.

## PLATYZOSTERIA ANCEPS, n. sp. Text-fig. 5.

Closely allied to *P. babindae* mihi (1922), but has no orange red macula at the antero-lateral angles of the 7th abdominal tergite; is larger, and the subgenital lamina of the ♂ is crenulate (Text-fig. 5). This species is also apterous, but the meso- and metanotum have shallow grooves indicating the position of vestigial tegmina and wings; the lateral margin of the 7th tergite is serrate, as is also that of the 8th abdominal sternite (Text-fig. 5), the last-named character being absent in both *babindae* mihi and *scabrella* Tepp. Differs from *scabrella* Tepp. in the presence of shallow pits of the thoracic tergites, the darker antennae, the presence of lateral grooves of the meso- and metanotum, the shorter subgenital lamina of the male with styles which, though lateral, are more caudally inserted and extend considerably beyond the lamina. The coxal borders are narrowly ochreous, and the tarsi are of the *Platyzosteria* type.

*Length*.—♂, 21.0-24.0 mm.; ♀, 19.0-22.0 mm.

*Type material*.—Holotype ♂, No. 0/2892; allotype ♀, No. 0/2892a; and 13 paratypes. Coll. Q. Mus.

*Habitat*.—*Queensland*: Holotype, Upper Burnett District (C. Hogg); allotype, Mt. Forbes, Rosewood (C. Drevson); Laidley (auct.); Jandowae (R. Illidge); Thulimbah (S. Perriman); Stanthorpe District (H. Jarvis); Childers (J. F. Illingworth); caves near Rockhampton (R. L. Higgins).

*Note*.—This species was mentioned by me (1922) and examination of a larger amount of material shows that it can readily be separated from *babindae* mihi, and from *scabrella* Tepp., which lie on either side of it.

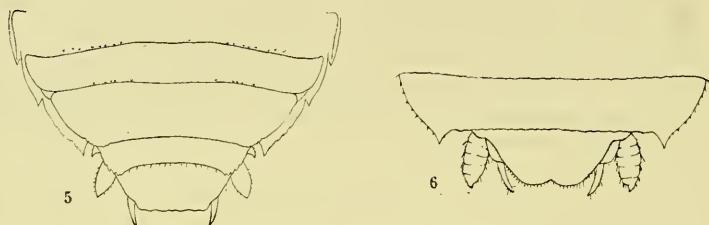
## PLATYZOSTERIA BICOLOR Kirby.

*Melanozosteria bicolor* Kirby, *Ann. Mag. Nat. Hist.* (7), xii, 1903, p. 373.

*New Localities*.—*Torres Straits*: Darnley Island; *New Guinea*: Hall Sound. Macleay Mus., Sydney.

## PLATYZOSTERIA SCABROSA, n. sp. Text-fig. 6.

Small, black, apterous, densely scabrous. Head with the vertex and frons showing numerous shallow depressions, black, with the margins of the clypeus and labrum rufo-fuscous; antennae yellow, except the three proximal segments,



Text-fig. 5. *Platyzosteria anceps* Shaw. ♂. Apex of abdomen, ventral aspect. Drawn from the holotype.

Text-fig. 6. *Platyzosteria scabrosa* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

which are fuscous. Thoracic tergites moderately, and abdominal tergites densely scabrous; lateral margins of the 7th abdominal tergite not serrate, but bearing a few hairs, each springing from a slight elevation; abdominal sternites black, finely scabrous, the distal margins rufo-castaneous.

Supra-anal lamina of the ♂ (Text-fig. 6) subquadrate, emarginate, fimbriate, not so coarsely scabrous as the preceding tergites, tips and ventral surfaces of the cerci dark orange colour; of ♀ similar, more produced and more deeply emarginate. Subgenital lamina of the ♂ transverse, posterior margin faintly concave; styles slender, acuminate, slightly incurved, longer than the lamina and of about the same length as the cerci; of the ♀, the subgenital lamina is of the usual bivalvular form. Legs rufo-castaneous, margins of the coxae narrowly rufous. Metatarsi of the *Platyzosteria* type.

*Length*.—♂, 10.0 mm.; ♀, 11.5 mm.

*Type material*.—Holotype ♂ and allotype ♀, Macleay Museum, Sydney.

*Habitat*.—Western Australia: King George's Sound.

*Note*.—This little cockroach probably belongs to the *scabrella* Tepp. group, with no vestigial tegmina or wings, and a scabrous dorsal surface. Its small size and more scabrous surface distinguish it from *scabra* Br.v.W. and *scabrella* Tepp. Bolivar's species *variolosa*, from New Caledonia, I do not know the size of, but Shelford's (1909) note and figure of it could hardly refer to the present species.

## PLATYZOSTERIA JUNGII Tepp.

*Periplaneta jungii* Tepp., *Trans. Roy. Soc. S. Aust.*, 1895, p. 162.

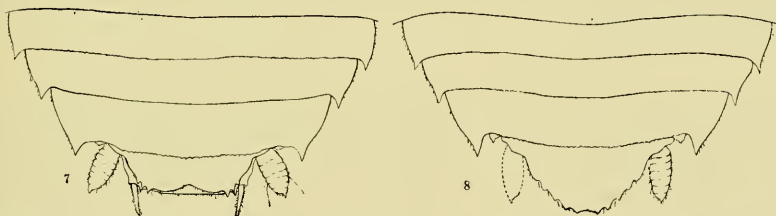
Tepper described the ♂ and, after examining the type material in the South Australian Museum, I have no doubt of this being quite a distinct species. There were 3 specimens, but Tepper, in indicating his types in 1915, unfortunately selected as the "Type of ♂" an adult ♀ bearing on its label the date 2.1.96, so this obviously could not be the type. Of the other 2 specimens, one was a larval ♂ labelled "Yorktown 30.12.94 A. Jung," and must be selected as the type of the species; the third being another adult ♀, bearing no label, and this

specimen the Museum kindly presented to me, and it is now in my collection. This species belongs to the group which includes *biglumis* Sauss., but to that portion of it without ochreous coxal borders, and is most nearly allied to *P. melanosa*, a species from South-Western Australia, here described as new.

*P. jungii* Tepp. is very broad, looks like a small *Cutilia nitidia* Br. v. W., but distinguished, not only by its tarsal structure, but by its vestigial tegmina which are not completely separated from the mesonotum, narrow and acuminate, and are produced a little beyond the posterior tergal margin. The ocelliform spots are not seen; the antennae are longer than the body, black for about their distal  $\frac{1}{6}$ , then fuscous; mouth parts black. The distal abdominal tergites have their postero-lateral angles strongly produced backwards and the lateral margins of the 7th not serrate. The supra-anal lamina of the ♀ is triangular, deeply emarginate, with apical serrations. Legs wholly black, posterior metatarsus with pulvillus extending upwards, with strong hairs, some of which appear to be disposed in basal biseriate rows beneath, but they are not spines as in *Cutilia*; ungues black.

PLATYZOSTERIA MELANOSA, n. sp. Text-figs. 7 and 8.

Shining, black, with the exception of the ocelliform spots, the castaneous or fuscous margins of the clypeus and labrum, the castaneous tips of the cerci and the testaceous 5th tarsal segments. Vertex exposed; antennae with the basal segment black, the remainder missing. Vestigial tegmina not completely separated, narrow, acuminate, produced a little beyond the margin of the mesonotum; no wing vestiges.



Text-fig. 7. *Platyzosteria melanosa* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

Text-fig. 8. *Platyzosteria melanosa* Shaw. ♀. Apex of abdomen, dorsal aspect. Drawn from the allotype.

Postero-lateral angles of the distal abdominal tergites strongly backwardly produced, lateral margins of 7th tergite not serrate; supra-anal lamina of the ♂ (Text-fig. 7) subquadrate, widely emarginate, fimbriate, lateral margins everted, three strong spines at each postero-lateral angle, exceeded by the cerci; of the ♀ (Text-fig. 8) triangularly produced, strongly spined all round except towards the base, where there is some eversion of the margin; subgenital valves of the usual Blattine form. Terminal abdominal sternites in both sexes somewhat scabrous. Coxal borders black, posterior metatarsus about as long as the remaining tarsal segments combined, pulvillus produced for about half the length of the segment, with a few short hairs basally.

*Length*.—♂, 22.0 mm.; ♀, 24.0 mm.

*Type material*.—Holotype ♂, No. K45547, and allotype ♀, No. K51764. Australian Museum, Sydney.

*Habitat*.—*Western Australia*: Michaelmas Is., King George's Sound (Troughton, Grant and Wright, 21.11.21).

*Note*.—This species belongs to the group of *P. biglumis* Sauss. with only partly separated tegminal vestiges, and to that section of this group without pale coxal borders. It is larger than *biloba* Sauss. and *perplexa* Shelf., and has not the peculiar structure nor the long cerci of *curiosa* Shelf., but the last species, as Shelford thought possible, may have been described from a larva. *P. melanosa* is most nearly allied to *P. jungii* Tepp., being of about the same length, but of a markedly narrower shape, has a few small departures from the uniform blackness of that species, and the supra-anal lamina of the ♀ is of a quite different form.

PLATYZOSTERIA ARDROSSANENSIS Tepp. (1893).

A synonym of *Zonioploca alutacea* Stål (q.v.).

Tepper's "Type of ♀," as indicated by him in 1915, is labelled "Goolwa." This is evidently an error, as Ardrossan is the only locality mentioned in the original description; but a ♀ amongst the "Cotypes" bears an old label "Ardrossan 26-2-85"; and was no doubt his type of ♀.

PLATYZOSTERIA AVOCAENSIS Tepp.

Tepper (1893) described the ♀ only, but in 1915 he selected, in addition to his "Type of ♀," a specimen which he labelled "Type of ♂." This, while probably conspecific with the type of ♀, is not adult, but really a larval ♀. The type of ♀ is distinct from *castanea* Br.v.W., being larger, apterous, the lateral margins of the 7th abdominal tergite are serrate, and the ootheca is smooth, while that of *castanea* is prominently longitudinally keeled as shown by specimen No. 272 in my collection.

PLATYZOSTERIA EXASPERA Tepp. (1894).

Tepper (1894) described the ♂ only, but there is confusion here also with regard to his types. In 1915, he selected, in addition, a "Type of ♀," using a specimen which reached him after the date of the publication of his paper. I am unable to separate either of these from *castanea* Br.v.W., and although Shelford appeared to consider both *avocaensis* Tepp. and *exaspera* Tepp. identical with *castanea* Br.v.W., examination of the types convinces me that *avocaensis* at least is a separate species.

PLATYZOSTERIA PROVISIONALIS Tepp.

*Periplaneta provisionalis* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 108; 1895, p. 161.—*Syntomaptera provisionalis* Tepp., Kirby *Syn. Cat. Orth. Brit. Mus.*, 1, 1904, p. 130.—*Platyzosteria provisionalis* Tepp., Shelford, *Trans. Ent. Soc. Lond.*, 1909, p. 282.

With regard to the type of this species, there are two specimens in the Type Collection of the South Australian Museum selected and marked as type material by Tepper in 1915, more than twenty years after he had described the species, and after he had left the Museum. As he was then a very old man there is little wonder that numerous mistakes occurred in the selection of the types, and the matter has already been alluded to by me (1916) when dealing with the types of *Ischnoptera brunneonigra* Tepp. The two specimens referred to are not conspecific, that which he selected and labelled as "Type of ♀" also bearing old labels, giving Torrens Creek as locality, the date 1894, and the designation

"♂ nymph." It is really a ♂, apterous, and has the posterior metatarsi spined beneath. The second specimen, labelled in 1915 as "Cotype," bears also a label "Mt. Bryan E. 4.6.87. T. Best." It is an adult ♀, 12 mm. long, with long narrow tegminal vestiges, and the posterior metatarsi missing. I consider this should be indicated as the holotype of *provisionalis* Tepp., the first specimen being an undetermined *Cutilia*.

PLATYZOSTERIA ALBOMARGINATA Br. v. W.

This species will probably be found widely spread from Western Australia through South and Central Australia to New South Wales, but I have no records from Victoria. Brunner (1865) gave a meagre description of the larval ♂, but Shelford (1909) added more details and figured the apex of the abdomen of the ♂. The supra-anal lamina of the ♀ is of a form almost identical with that of the ♂, but I think Shelford's figure errs in representing the lateral margins of the 7th tergite as so coarsely serrate. The posterior metatarsus is shorter than the remaining segments combined, unspined beneath, and with a pulvillus extending proximally. The diagnostic points between this and the following species, *brunnea* Tepp., will be found under the latter. In some specimens the prominent white lateral border of the thoracic tergites is almost obsolete, only showing as a short narrow streak on the pronotum, and as a small dash or spot on the meso- and metanotum.

*New Localities.*—*South Australia*: Pungonda (A. Dubbe), Kangaroo Island (A. M. Lea), Murray River (H. S. Cope), Ooldea (A. M. Lea). S. Aust. Mus.

Key for *P. albomarginata* Br. v. W. group.

- |   |                                |
|---|--------------------------------|
| (8) 1. Pale border not extending round the abdomen.     |                                |
| (3) 2. Small species (15.0 mm.)                         | <i>inclusa</i> Walker.         |
| (2) 3. Larger species.                                  |                                |
| (5) 4. Posterior margin of seventh tergite sinuate      | <i>variegata</i> Shelf.        |
| (4) 5. Posterior margin of seventh tergite not sinuate. |                                |
| (7) 6. Abdomen tapering caudally                        | <i>albomarginata</i> Br. v. W. |
| (6) 7. Abdomen broad caudally                           | <i>brunnea</i> Tepp.           |
| (1) 8. Pale border extending round the abdomen.         |                                |
| (10) 9. Strongly spined caudally                        | <i>spenceri</i> Shelf.         |
| (9) 10. Not so  | <i>obscuripes</i> Tepp.        |

PLATYZOSTERIA BRUNNEA Tepp. (1893).

An examination of Tepp. type material in the South Australian Museum showed that it consisted of four specimens marked by Tepp. in 1915, "Type of ♂, Type of ♀. Cotypes ♂ and ♀." The "Type of ♂" was a ♀ of *P. communis* Tepp. with a locality label "Brighton" attached, and was removed at my instance by the Museum entomologist. The three other specimens were larval ♀, the one selected as "Type of ♀" being one of the original Gilbert River examples, dated "L. Molineaux 30.5.87.", and should be recognized as the holotype of the species. Capt. S. A. White has since brought in several specimens, including males, from Central Australia, and one of these should be selected as the allotype ♂, unless Tepp. type of ♂ can be found. This species differs considerably from *albomarginata* Br. v. W., although it belongs to the same group of *Platyzosteria*, that is, those with a flavid lateral border but no tegminal vestiges. The abdomen of *albomarginata* Br. v. W. tapers gradually towards the apex, whilst in *brunnea* Tepp. the 6th tergite is as wide as the 5th, and only a little wider than the 7th, the postero-lateral angles of which are very strongly backwardly produced,

and relatively wide apart. The lateral margins of the 7th abdominal tergite are strongly serrate in *brunnea* Tepp. and but faintly in *albomarginata* Br. v. W., and there is a definite thickening of the lateral borders of the abdominal tergites in the former, which the latter does not show. The cerci of *albomarginata* Br. v. W. are relatively much longer than those of *brunnea* Tepp. In colouring also the two differ, for whilst *albomarginata* Br. v. W. is almost black, *brunnea* Tepp. is brown, and has a broader flavid margin.\*

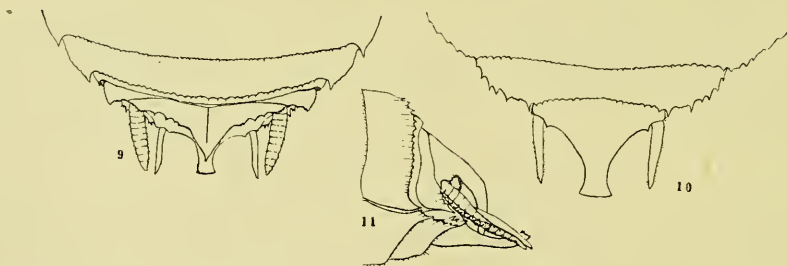
PLATYZOSTERIA SUBMARGINATA Tepp.

*Drymaplaneta submarginata* Tepp., *Trans. Roy. Soc. S. Aust.*, xvii, 1893, p. 11.

Shelford (1909) regarded this species as identical with *P. circumducta* Walk., but while that species will probably prove to be a *Cutilia* Stål, an examination of Tepp's types of *submarginata* show it to be a true *Platyzosteria*. The larval ♀ which Tepp describes, and gives the length of as 21 mm., I was unable to trace in the South Australian Museum.

PLATYZOSTERIA RUGOSA, n. sp. Text-figs. 9, 10 and 11.

♂ apterous, nigro-castaneous. Dorsal surface densely and coarsely punctate. Head black; ocelli orange, minute; margins of the clypeus, and of the emarginate labrum pale; antennae longer than the body, black. Pronotum almost concealing the vertex, posterior margin straight, broadly bordered with orange-yellow except in the middle third where the castaneous disc reaches it; meso- and metanotum with the postero-lateral angles slightly produced, the outer fourth of the former and the outer fifth of the latter being orange-yellow. Abdomen slightly wider than the thorax; tergites 5, 6 and 7 with the postero-lateral angles produced; tergite 8 with the postero-lateral angles bearing spiracles; tergite 9 with the angles serrate posteriorly; tergites 6 and 7 with the posterior margins crenulate and serrate respectively; supra-anal lamina (Text-figs. 9 and 11) triangular, the lateral margins



Text-fig. 9. *Platyzosteria rugosa* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

Text-fig. 10. *Platyzosteria rugosa* Shaw. ♂. Apex of abdomen, ventral aspect. Drawn from the holotype.

Text-fig. 11. *Platyzosteria rugosa* Shaw. ♂. Apex of abdomen, lateral aspect. Drawn from the holotype.

serrate at the base, apex produced into a long, sharp, deflected spine, medially carinate at the base; subgenital lamina (Text-fig. 10) produced into a long, flattened, slightly reflected process whose apex, about 0.75 mm. wide, is crenulate;

\* Since writing the above I find that Mr. N. B. Tindale (1923) has published a figure of the holotype ♀; and a figure, with some descriptive notes, of a ♂ from Pearson Island.

styles about the length of the lamina, acuminate, with a short spine within the base; cerci long. Abdomen beneath smooth, nitid, nearly black, sternites 7 and 8 with the posterior angles and the outer portions of the posterior margins serrate. Legs black; coxae very narrowly margined yellow; posterior metatarsus long, unspined beneath, pulvillus occupying the whole segment. Other tarsal segments unspined, with large pulvilli. Arolia present.

*Length*.—25.0 mm.

*Type material*.—Holotype ♂, South Australian Museum.

*Habitat*.—Northern Territory: Mary River (W. D. Dodd).

*Note*.—The spinose distal tergites and sternites and the extended supra-anal lamina resemble those of *Leptozosteria prima* Teppar, but the texture of the dorsal surface and the form of the subgenital lamina are very different, and I leave this species in the genus *Platyzosteria* for the present. This unique specimen is a striking and handsome cockroach, and it will be interesting to see further material.

PLATYZOSTERIA CINGULATA Shaw.

*Platyzosteria cingulata* Shaw. PROC. LINN. SOC. N. S. WALES, xlvii, 1922, p. 226.

*New Locality*.—Queensland: Toowoomba (H. Longman). Coll. Q. Mus.

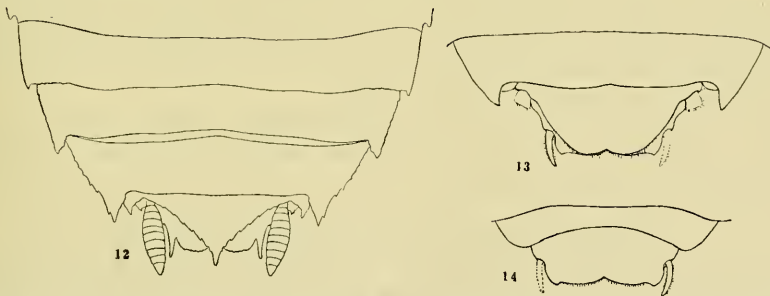
PLATYZOSTERIA CURIOSA Shelford.

*Platyzosteria curiosa* Shelf., Faun. Sudwest. Aust., Bd. ii, Lief 9, 1909, p. 135, Plate xiii, figs. 11, 12.

Described from a single ♀ from Northam, Western Australia, and Shelford mentions as doubtful a second specimen in the Hope Museum. In 1920 the late F. P. Spry gave me a ♀ (No. 230 Coll. Shaw), with ootheca attached, which I refer to this species. No locality was obtained, but doubtless it was Australian. The insect is much depressed, as is also the ootheca, which is carried suture dorsally; the suture as far as visible showing no serrations. In my specimen the supra-anal lamina is not dentate all round as shown in Shelford's figure, but only about the apex, the remainder being spined.

PLATYZOSTERIA PRIMA Teppar. Text-fig. 12.

*Leptozosteria prima* Tepp., Trans. Roy. Soc. S. Aust., 1893, p. 96.—*Platyzosteria aposematica* Shelf., Trans. Ent. Soc. Lond., 1909, p. 288.



Text-fig. 12. *Platyzosteria prima* Teppar. ♂. Apex of abdomen, dorsal aspect. Drawn from No. 0/2902, Coll. Q. Mus.

Text-fig. 13. *Zonioploca bicolor* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

Text-fig. 14. *Zonioploca bicolor* Shaw. ♂. Apex of abdomen, ventral aspect. Drawn from the holotype.

I have examined all the specimens enumerated below, and I think they will be found to be examples of a species having a considerable range of variation in both size and colouring. The dark markings on the thoracic tergites do not always display a pale discal portion; but all the examples have a very depressed form, a spinosity of the terminal abdominal segments, and a similar form of the terminal laminae in each sex. In all, also, the form of the posterior tarsus is the same, and is that of *Platyzosteria*. Tepper described *prima* from a single ♂, and Shelford *aposematica* from a single ♀, giving a good figure. Both are recorded from Central Australia, as are also White's specimen, and the remaining two from the fringe of that area taken in the faunistic sense. As the ♂ has never been figured the apex of the abdomen is shown in Text-fig. 12.

*Habitat*.—*Central Australia*: ♂, Type of *L. prima* Tepp.; Spencer-Gillen Exped. 1889. ♀, Type of *aposematica* Shelf. (Nat. Mus. Melb.); Capt. S. A. White (Adelaide Mus.). *Queensland*: Winton, 1912, ♂, Higgins (Q. Mus.); Aramac, 1920, larval ♀ (Austr. Mus., Sydney, No. K43406).

#### SYNTOMAPTERA GLABRA Tepper.

*Syntomaptera (Periplaneta) glabra* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 107.

There are five specimens under this name in the South Australian Museum. All are ♀ and of these, three labelled "N. Territory, Puleine" (not Magarey) are of an apterous *Cutilia*, with typically spined posterior metatarsus; certainly not Walker's *Periplaneta glabra*, nor *Platyzosteria aterrima* Erichs. (teste Shelford, 1909); but probably either Tepper's *parva* or an allied undescribed species. The other two specimens are of a true *Platyzosteria*, with vestigial tegmina and yellow margined coxae, not *aterrima* Erichs., which is apterous, and not *parva* Tepp., which is a *Cutilia*; but may be the ♀ of *glabra* Walker, of which the ♂ only was described. All these specimens are ♀, and it is unwise to be definite about them, but in any case neither of the two specimens of *Platyzosteria* can be the type of *glabra* Tepper, as they did not reach him until months after his description of that species was published.

#### Genus ZONIOPLOCA Stål.

##### ZONIOPLOCA ALUTACEA Stål.

*Zonioploca alutacea* Stål, *Bih. Svensk. Akad.* ii (13), 1874, p. 13.—*Platyzosteria ardrossanensis* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 92.

Shelford (1909) saw Stål's type and found that Tepper's description of *ardrossanensis* "corresponded perfectly" with it.

*New Localities*.—*South Australia*: Goolwa, Tepper (South Australian Mus.), Myponga, A. H. Elston (Coll. auct.). *Western Australia*: Mullewa, 1914; Cunderdin, 1913-14 (S.A. Mus. and Coll. auct.).

##### ZONIOPLOCA BICOLOR, n. sp. Text-figs. 13 and 14.

Ochraceous. So densely covered with reddish-brown granules that, except at the thickened margins of the pronotum, the dorsal ground colour is scarcely visible. Head ochraceous, granulate, antennae reddish-brown, paler proximally. A short thick yellow streak extending backwards and outwards about the middle of each lateral half of the meso- and metanotum; these streaks appear on the abdominal tergites as irregularly shaped maculae; beneath sordid testaceous, not granulate. Legs with most of the dorsal aspect of the coxae and femora shining

black, and that of the tibiae rufo-castaneous, and of the tarsi partly black, ventral aspect of the legs concolorous. Coxal borders pale yellow on both aspects. Posterior metatarsus about as long as the remaining segments combined, unspined beneath, pulvillus apical, arolia large. Supra-anal lamina ♂ (Text-fig. 13) large, rounded, very faintly emarginate, fimbriate, cerci broken off. Subgenital lamina ♂ (Text-fig. 14) subquadrate, angles obtuse; styles lateral, long, acuminate.

*Length*.—♂, 17.0 mm.; ♀, 22.0 mm.

*Type material*.—Holotype ♂, No. K45509; and allotype ♀, No. K45510, Australian Mus., Sydney.

*Habitat*.—Western Australia: Cranbrook (Troughton and Wright).

*Note*.—This species is much like *Z. medilinea* Tepp., without the black stripe, or granulose sternites; but the legs are more like those of *alutacea* Stål and *pallida* Shelf. They differ, however, in their striking colouring, whilst the ventral aspect of the legs is inconspicuous, the dorsal aspect, with the black and yellow coxae and femora, castaneous tibiae, and parti-coloured tarsi, would afford a startling spectacle should these cockroaches assume for defence the tilted forward attitude noted by me (1914) as used by *Platyzosteria castanea* Br. v. W. (but in that note I wrote "ventral" for dorsal). The leg colouring of this and other species supports the idea that the attitude may be employed by many cockroaches, and may account for the frequently found pale coxal borders.

#### ZONIOPLOCA DIXONI Shaw.

*Zonioploca dixonii* Shaw, PROC. LINN. SOC. N. S. WALES, xlvii, Pt. 3, 1922, p. 231.

This species was described by me as new, and placed with some reservation in *Zonioploca* Stål; but since examining Tepper's type of his *Lepidophora furcata* in the South Australian Museum, I have no doubt but that the two are identical, and my name therefore becomes a synonym of his (vide *Eppertia furcata* Tepp.).

#### ZONIOPLOCA LATIZONA Tepper.

*Platyzosteria latizona* Tepp., Trans. Roy. Soc. S. Aust., 1893, p. 92.

Shelford (1909) was uncertain as to the position of this species, but an examination of Tepper's types shows it to be a *Zonioploca*, probably near *robusta* Shelf., but smaller. The types, ♂ and ♀, are in the South Australian Museum, and a "Cotype" kindly presented to me by the Museum, is in the Queensland Museum collection, No. O.2856.

#### Genus EPPERTIA, nov.

##### EPPERTIA FURCATA Tepper.

*Lepidophora furcata* Tepp., Trans. Roy. Soc. S. Aust., 1895, p. 21; Report Horn Exped. Cent. Aust., 1896, p. 363.—*Tepperia furcata* Kirby, Syn. Cat. Orth. Brit. Mus. (Additions and Corrections to Vol. i), Vol. iii, 1910, p. 565.—*Zonioploca dixonii* Shaw, PROC. LINN. SOC. N. S. WALES, xlvii, Pt. 3, 1922, p. 231.

Tepper described this species from a ♂ taken at Lake Callabonna in South Australia. His type is in the South Australian Museum, marked as such by himself, and the Museum possesses a second ♂ captured at Oodnadatta, Central Australia, and mentioned by Tepper in the Report of the Horn Expedition. This specimen is also marked "Type" in Tepper's writing, evidently an error, as it was

not captured until some years later, and the Horn Expedition Report was not published until more than a year later than the original description. The next known of the insect was when the late F. P. Spry sent me specimens from the Victorian Mallee and from South and Central Australia, and not recognizing it as Tepper's *Lepidophora furcata*, I (1922) described it as *Zonioploca dixoni*; but an examination of Tepper's type showed me my error. Tepper thought it was a Perisphaeriine, never having seen the ♀, but my ♀ (the allotype) and a ♀ returned to Mr. Spry have the subgenital lamina of the usual Blattine form, and I think the genus should come after *Zonioploca* Stål. Kirby followed Tepper in placing it in the Perisphaeriinae. The "scale like appendage" to which Tepper (1895) refers, and from which he took his generic name, is not, as he stated, parts of the abdominal tergites, but unusually large pleural plates bearing at their postero-lateral angles the hard ring-like tracheal openings. These, of course, are found in all cockroaches, and may be plainly seen in *Scabina*, *Anamesia*, and *Zonioploca*, and probably in many others. The largest known to me are those in the present species, and those nearer the thorax are larger than those more caudally situate.

In the type the subgenital lamina is shorter than in the *Oodnadatta* specimen, or in the ♂ in my collection. It may be deformed, as the subgenital lamina frequently is, notably in *Cosmozosteria*, and is evidently variable, as my specimen bears an internal tooth on the divergent spines which is absent in the others.

Tepper's generic name *Lepidophora* was used in Diptera by Westwood in 1835, so Kirby, in 1910, renamed the genus *Tepperia*; but *Tepperia* had already been used by A. M. Lea in 1903 for a genus of Curculionidae (PROC. LINN. SOC. N. S. WALES xxviii, 1903, p. 660), and a new genus is therefore needed to replace Kirby's. I would propose *Eppertia*, hoping thereby to preserve Kirby's compliment to Tepper.

#### Genus CUTILIA Stål.

##### Key to Cutilia.

- (34) 1. Not transversely banded.
- (29) 2. Possessing vestigial tegmina.
- (26) 3. Vestigial tegmina lobiform, subgenital lamina of the ♂ symmetrical.
- (19) 4. Not margined pale laterally.
- (18) 5. Legs not testaceous.
- (9) 6. Tegminal vestiges obliquely truncate.
- (8) 7. Large, relatively broad, legs black, ootheca smooth .... *nitida* Br. v. W.
- (7) 8. Smaller, not relatively broad, legs castaneous and rufous, ootheca fluted ..... *nitidella* Shaw.
- (6) 9. Tegminal vestiges more or less tapering, not obliquely truncate.
- (11) 10. Dorsum tuberculate ..... *obscura* Tepp.
- (10) 11. Dorsum not tuberculate.
- (15) 12. Spine at base of genital styles.
- (14) 13. Tegminal vestiges narrow, tapering sharply ..... *kellyi* Shaw.
- (13) 14. Tegminal vestiges broad, tapering roundly ..... *brevitarsis* Shaw.
- (12) 15. No spine at base of genital styles.
- (17) 16. Small size (about 17.0 mm.), subgenital lamina of ♂ with posterior margin straight ..... *scabriuscula* Tepp.
- (16) 17. Large size (about 27.0 mm.), subgenital lamina of ♂ with posterior margin convex ..... *insularis* Shaw, MS.
- (5) 18. Legs testaceous ..... *melanesiae* Shelf.
- (4) 19. Margined pale laterally.

- (23) 20. Testaceous or ferruginous.  
 (22) 21. Postero-lateral angles of the distal abdominal tergites of ♂ produced ..... *heydeniana* Sauss.  
 (21) 22. Not so ..... *sedilloti* Bol.  
 (20) 23. Castaneous.  
 (25) 24. Spine at the base of genital styles ..... *philpotti* Shaw.  
 (24) 25. No spine at the base of genital styles ..... *communis* Tepp.  
 (4) 26. Vestigial tegmina not free at the tips, but represented by a sulcus; subgenital lamina of ♂ asymmetrical.  
 (28) 27. Margined pale laterally ..... *uncinata* Shaw.  
 (27) 28. Not margined pale laterally ..... *illingworthi* Shaw.  
 (2) 29. Apterous.  
 (31) 30. Margined pale laterally ..... *tepperi* Shaw.  
 (30) 31. Not margined pale laterally.  
 (33) 32. Ferruginous ..... *spryi* Shaw.  
 (32) 33. Piceous ..... *parva* Tepp.  
 (1) 34. Transversely banded.  
 (38) 35. Nigro-castaneous, banded pale.  
 (37) 36. Large species (about 22 mm.), with broad interrupted fasciae of thorax ..... *subbifasciata* Tepp.  
 (36) 37. Small species (about 12 mm.), abdominal tergites 8 and 9 only banded ..... *feriarum* Shaw.  
 (35) 38. Testaceous, banded dark.  
 (40) 39. Disc of pronotum with 3 fuscous vittae arranged triangularly, tegminal vestiges completely separated ..... *secunda* Tepp.  
 (39) 40. Disc of pronotum with large black central macula, tegminal vestiges not completely separated ..... *nigrofasciata* Shaw.  
 Species incertae sedis ..... *brunni* Alf.

## CUTILIA OBSCURA Tepp.

*Periplaneta obscura* Tepp., *Trans. Roy. Soc. S. Aust.* xvii, 1893, p. 107.—Not *Platyzosteria obscura* Tepp., Shelford, *Trans. Ent. Soc. London*, 1909, p. 280, Pl. viii, Fig. 19; *Faun. Sudwest. Austr.* ii, Lief 9, 1909, p. 135.

I have examined Tepp's type in the South Australian Museum, and it is certainly a *Cutilia* Stål, the caudal metatarsi being typical; the tergites, except the pronotum, are tuberculate; the coxal borders are concolorous; the vestigial tegmina are complete; and the tips of the valves of the subgenital lamina are visible dorsally. Shelford's description of the Western Australian ♂ which he supposed to be of this species, was probably written from quite a different cockroach. He would hardly have overlooked the tarsal structure, or the tuberculate tergites; and while Tepp's species is but 15.0 mm., Shelford's is over 20.0 mm. long, and has pale bordered coxae. Tepp's species appears to be a good one, and differs from any other *Cutilia* known to me.

## CUTILIA SCABRIUSCULA Tepp.

*Periplaneta scabriuscula* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 108.—*Syntomaptera scabriuscula* Tepp., Kirby, *Syn. Cat. Orth. Brit. Mus.*, i, 1904, p. 130.—*Platyzosteria scabriuscula* Tepp., Shelford, *Trans. Ent. Soc. London*, 1909, p. 280.

A good species, widely distributed from Western Australia to Victoria; but an examination of Tepp's types in the South Australian Museum shows that the posterior metatarsus is longer than the remaining segments combined, is biserially spined beneath, and has an apical pulvillus; and that the species should go into Stål's genus *Cutilia*. Mr. A. M. Lea has taken the species from ants' nests at Port Lincoln and Goudie, South Australia.

## CUTILIA TEPPERI Shaw.

*Cutilia tepperi* Shaw, *Mem. Q. Mus.* vi, 1918, p. 157.—*Drymaplaneta circumcincta* Tepp. MS.

I examined Tepper's types of *circumcincta* in the South Australian Museum. There are two specimens labelled by him "Type of ♂", and "Type of ♀". These are both ♀, and were relabelled by me. I could find no records, and I think it is clear that he never published any description under his MS. name.

## CUTILIA COMMUNIS Tepp.

*Drymaplaneta communis* Tepp., *Trans. Roy. Soc. S. Aust.* xvii, 1893, p. 110.—*Methana antipodum* Brancsik, *Jahr. ver. Trencsin. Com.* xix-xx, 1897, p. 58, Pl. i, fig. 4 (teste Shelford).

I have examined Tepper's types in Adelaide, and these agree with his description and type localities; but the posterior metatarsus is biserially spined beneath, the pulvillus is not quite apical but extends a short distance upwards, and the whole segment, though long, is not longer than the other segments combined. This species is typical of a group lying between *Platyzosteria* and those undoubted examples of *Cutilia* with the long posterior metatarsus and apical pulvillus. There are several species which would fall into this group, and although time and opportunity do not permit of their being indicated in the present paper, I would venture to suggest the name *Cutiloidea* as being appropriate for an intermediate genus distinguished from *Platyzosteria* by the presence of a biserial row of spines beneath the posterior metatarsus, and distinguished from *Cutilia* on the other hand by the fact that this row of spines is not the whole length of the segment, the distal half of which, approximately, is occupied by a backward production of the pulvillus; the genotype being *communis* Tepp. There is very little variability in the form of the supra-anal lamina of the ♀ in *Cutilia* and this, if found correlated to a special tarsal structure, may prove a useful character.

The ♂ *communis* has a gland opening on the 1st abdominal tergite, situate in the middle line, close to the anterior margin, and concealed by the metanotum. Shelford (1909) has pointed out that an allied species *semivitta* Walk. possesses a similar structure, and this species is also a *Cutilia*. In colour *communis* varies from nigro-castaneous to fuscous, and in the larva the disc of the tergites is often much paler. In them also the pale thoracic border is found all round the abdomen, and in some adults this persists in the form of lateral yellow spots on tergites 1 to 4.

There is a striking superficial resemblance between some larvae of this species, larvae of *Methana marginalis*, and the adult form of *Cutilia sedilloti* Bol., but *sedilloti* has tegminal vestiges, and paler legs; and the prolonged postero-lateral angles of the meso- and metanotum of *marginalis* (the rudiments of the flying organs) readily separate them.

Tepper's use of the word "Cotype" is indefinite; he certainly did not use it in the restricted sense of a Primary Type, nor does he mean what is usually understood by "Paratype," for I have in my collection specimens marked "Cotype" by Tepper himself, captured at localities not mentioned in the original description and on dates long subsequent. What I think he meant was specimens compared by him and agreeing with his type; but then we know that most of his Blattid types were not so designated by him until 1915, many years after he had published his descriptions.

## CUTILIA CIRCUMDUCTA Walker.

*Periplaneta circumducta* Walk., *Cat. Blatt. Brit. Mus.*, 1868, p. 143.

Specimens taken by Dr. Mjöberg at Broome and in Kimberley district, Western Australia, and by Mr. N. B. Tindale at Groote Eylandt in the Northern Territory are perhaps this species. The vestigial tegmina are completely articulated, there are no wing vestiges, and the posterior metatarsi are of the *Cutilia* type. Larvae of this species closely resemble those of *C. communis* Tepp., but the tarsal structure of the latter is of the *Cutiloidea* type, the yellow border disappears from the abdomen either completely or partly at maturity, and the face is immaculate. Whether these specimens should be referred to Walker's *circumducta* or not, they certainly are not Teppers' *submarginata* (q.v.) which has posterior metatarsi of the *Platyzosteria* type.

## CUTILIA ILLINGWORTHII Shaw.

*Cutilia illingworthi* Shaw, *Proc. Linn. Soc. N.S.W.* xlvii, 1922, p. 227, Text-fig. 4.

*New Localities.*—*Victoria*: Mallee district. A small ♀ (No. 347, Coll. Shaw) 18.0 mm. long, sent to me in 1920 by the late F. P. Spry, is probably this species from an unexpected locality. *Lord Howe Island*: One small ♀, Macleay Mus., Sydney.

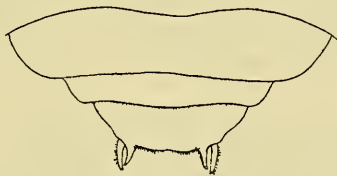
## CUTILIA PARVA Tepp.

*Periplaneta parva* Tepp., *Trans. Roy. Soc. S. Aust.*, 1895, p. 162.—*Platyzosteria parva* Tepp., Shelford, *Gen. Ins.*, Fasc. 109, 1910, p. 7.

The type of this species is in the South Australian Museum and agrees well with the description. The posterior metatarsus is typically that of *Cutilia* Stål, the insect is completely apterous, the pale segments of the antennae can be plainly seen, and the ootheca is not longitudinally fluted.

## CUTILIA PULCHRA, n. sp. Text-fig. 15.

♂. Head yellow, a broad castaneous streak extending from the vertex to the margin of the clypeus; labrum castaneous, slightly emarginate; antennae longer than the body, fuscous. Pronotum exposing the vertex, nigro-castaneous, almost black, with two broad yellow transverse bands; mesonotum and metanotum similarly coloured, but with only one yellow band; margins of all the bands



Text-fig. 15. *Cutilia pulchra* Shaw. ♂. Apex of abdomen, ventral aspect.  
Drawn from the holotype.

irregular; lateral margins of all the thoracic tergites narrowly castaneous; vestigial tegmina completely separated, apex obliquely truncate, coarsely punctate, with a dark macula occupying the anal portion; abdominal tergites rich rufo-castaneous, except laterally, where on tergites 2 to 7 a large yellow macula is situate, the area surrounding this macula being darker than the disc; postero-

lateral angles of tergites 5, 6 and 7 backwardly produced, lateral margins entire. Legs with the coxae sordidly greyish, all the coxal ridges with their surfaces spinose; coxal borders paler, and a dark macula occupying the upper portion of the middle and posterior coxal grooves; tibiae castaneous; tarsi testaceous, posterior metatarsus longer than the remaining tarsal segments combined, biserially spined beneath, pulvillus apical, remaining segments unspined, with large pulvilli; ungues missing. Supra-anal lamina subquadrate, widely emarginate, fimbriate, lateral margins serrate; subgenital lamina (Text-fig. 15) subquadrate, posterior margins straight; styles lateral, castaneous, a large strong spine at the base of each, nearly as long as the style, distal half of spines yellow; cerci longer than the lamina.

*Length*.—19.0 mm.

*Type material*.—Holotype ♂, Macleay Mus., Sydney.

*Habitat*.—New South Wales.

*Note*.—This unique specimen, which is not included in the above key, is in the Macleay Museum, Sydney, with no other label than N.S.W.; and when fresh its rich colouring must have made it a very striking species.

#### CUTILIA SECUNDA Tepp.

*Leptozosteria secunda* Tepp., *Trans. Roy. Soc. S. Aust.*, 1894, p. 183.—*Polyzosteria triangulata* Br. v. Wattenwyl, *Ann. Mus. Civ. Genova*, Ser. 2a, xiii, 1893, p. 33; Krauss., *Denkschr. med-nat. Ges. Jena*, viii, 1903, p. 750, Pl. lxxvii, fig. 1 (fide Shelf.).—*Cutilia triangulata* Shelford, *Trans. Ent. Soc. London*, 1909, p. 291.

Brunner v. Wattenwyl's few words, referring to an undescribed species, cannot be regarded as a sufficient diagnosis; but Tepp's description is good and well detailed. That Krauss gives a good description and figure under a wrong name does not make that name right. The inappropriateness of name which Shelford (1909) condemns was quite appropriate to Tepp when he placed the species as a second one in his genus *Leptozosteria*; and anyhow a consideration of this kind should not weigh in a question of priority. I think the explanation is that Shelford showed, here and there, evidence of a not unnatural irritation at what he considered to be Tepp's want of courtesy. I have examined Tepp's type of *secunda* and the posterior tarsal structure is typically that of *Cutilia*. This species sometimes occurs in houses.

*New Localities*.—*Queensland*: Laura (T. G. Sloane, 1916), Townsville (F. H. Taylor, ex house), Gordonvale and Babinda (J. F. Illingworth, 1917), Clermont (Miss B. Carne, 1920), Cairns (J. F. Illingworth, ex house). *New Guinea* and *Darnley Island* (Macleay Mus., Sydney).

#### CUTILIA SUBBIFASCIATA Tepp.

*Drymaplaneta subbifasciata* Tepp., *Trans. Roy. Soc. S. Aust.* xvii, 1893, p. 112.—*Platyzoosteria subbifasciata* Shelf., *Trans. Ent. Soc. Lond.*, 1909, p. 286.—*Cutilia subbifasciata* Shaw, *Vict. Nat.* xxxi, 1914, p. 106.

I have examined the specimens from the Northern Territory marked by Tepp as his types. They are a larval ♂ and a larval ♀; both belong to the Genus *Cutilia* Stål, and both have the dorsal pale lateral border continued around the abdomen. This species varies in colour, and in some specimens, as in Mr. Tindale's from the Roper River, most of the pale colour is absent; it also affords another example of the occasional persistence in the adult of the pale border of the abdominal tergites usually lost at the last ecdysis. In the Macleay Museum in Sydney the

locality "N.S.W." on two old specimens must be regarded as doubtful, and a third, a larval ♂, is labelled "*Polyzosteria macleayi* Sauss., Port Darwin," a name I am unable to trace, and one not mentioned by either Shelford or Kirby.

*New Localities.*—Port Darwin and Melville Isd. (Baldwin Spencer, Aug., 1912. Nat. Mus. Melb.); N.S.W. (Macleay Mus.); Roper River, N. Terr. (N. B. Tindale, S. Aust. Mus.).

#### Genus COSMOZOSTERIA Stål.

The species of this genus are difficult to separate as, on the whole, there is little difference in structure between them. The supra-anal lamina of the ♂ in all the species is straight and fimbriate posteriorly, with deflected spines at the postero-lateral angles, except in *C. picta* Tepp. (= *gloriosa* Shelf.) where it is slightly convex and unspined; the subgenital lamina of the ♂ is in all widely emarginate with strong divergent spines (less marked in *picta* Tepp.). All the species are castaneous, and all, with the exception of *C. froggatti* Shelf., have prominent flavid markings. The flavid markings vary much in some species, the larvae showing them more than the adults. In *C. zonata* Walk., for example, while the adult has simply 3 or 4 transverse bands, the larva may have a lateral flavid border practically all round. I had hoped to give a satisfactory key to the species, but the more I examine them the greater the uncertainty, and now I have only time to offer a few remarks about some of the species. I have examined Tepper's types and his *C. maculimarginata* is probably a distinct species, though his "Type of ♂" and "Type of ♀" are both female larvae, and in this genus it is not wise to describe new species unless from an adult. His *C. picta* is a good species and Shelford's *gloriosa*, also described from a ♀, is identical with it. His "Cotype," also an adult ♀, is not conspecific with the type, but I believe it to be identical with a species of which I have several specimens from North Queensland, and which I here describe as *C. sloanei*. Tepper's *subzonata* is also, I think, a distinct species, certainly not *bicolor* Sauss. (as Shelford thought), nor identical with the species occurring around Brisbane which I (1918) mistook for it. This last species does not appear to agree with any of the others, though nearer to *C. subzonata* Tepp., and I here describe it as *C. brisbanensis*. Another curious point about this genus is that in a very large proportion of the ♂ the subgenital lamina is found to be deformed, one postero-lateral angle (commonly the right one) being rounded instead of being produced into the usual divergent spine; or one spine may be much longer than the other. *C. froggatti* Shelf. and *C. lateralis* Walk. differ structurally from the remainder in the abdominal tergites not being scabrous, but closely covered with shallow pits.

As previously pointed out, the pale marginal colour of the larva is to a large extent lost in the adult. In *C. zonata* Walk. all the larvae in my collection show a yellow anterior pronotal border, and in several the yellow border is carried practically all round the insect. When maturity is reached, only the three bands on the posterior borders of the thoracic tergites are left, this being Walker's (1868) *trifasciata*; but sometimes the anterior pronotal band persists and his (1868) *quadrifascia* appears. Then again, in other species such as *C. sloanei* mihi, the pronotal yellow margin in the adult varies in extent, sometimes becoming obsolescent, leaving only a couple of small antero-lateral bands.

Amongst some specimens from Northwest Australia of a species near *C. zonata* Walk. are a ♂ and ♀ in the Stockholm and Sydney Museums respectively, with

the castaneous disc of the pronotum completely surrounded by a broad yellow band, the remaining specimens having a quadrifasciate form. These latter are probably the normal form of an undescribed species, and those with the complete band a variety. Several specimens of the normal form were taken by Mr. N. B. Tindale at Maria Island and the Roper River in the Gulf of Carpentaria, and one by Dr. Mjöberg at Broome in Western Australia.

COSMOZOSTERIA BRISBANENSIS, n. sp.

*Cosmozosteria subzonata* Shaw, *Mem. Q. Mus.*, 1918, p. 162.

Near *subzonata* Tepp., but is smaller, the line of demarcation between the dark disc of the thoracic tergites and their yellow posterior border is clean cut, the lateral yellow spots of the abdominal tergites are smaller, only occupying the cephalic half of the tergal width, and the postero-lateral angles of the meso- and metanotum are not so much produced caudally. The proportion of the two species as to length and width is about the same, and both are relatively broader than *bicolor* Sauss. The laminae and tarsi are of the *Cosmozosteria* type.

*Length*.—♂, 20.0-22.5 mm.; ♀, 22.5-27.0 mm.

*Type material*.—Holotype ♂, No. 0/2893; allotype ♀, No. 0/2893a; and paratypes, 32. Coll. Q. Mus.

*Habitat*.—*Queensland*: Brisbane, Ipswich, Rosewood, Mt. Tambourine, Christmas Creek, Jandowae, Upper Burnett district.

COSMOZOSTERIA SLOANEI, n. sp.

Rich castaneous. Pronotum relatively wider than that of *C. bicolor* Sauss.; thoracic tergites with a few scattered shallow pits; abdominal tergites scabrous; angles of the 9th lobiform, yellow; supra-anal and subgenital laminae and tarsi of the *Cosmozosteria* type. A broad yellow border surrounding the front and sides of the pronotum, except at the postero-lateral angles which are castaneous; this border is continued on the meso- and metanotum as large irregular maculae, not reaching the postero-lateral angles, and similarly on abdominal tergites 2 to 7. Coxal borders narrowly yellow.

*Length*.—♂, 20.0-22.5 mm.; ♀, 22.5-27.9 mm.

*Type material*.—Holotype ♂, No. 0/2894; and allotype ♀, No. 0/2894a. Coll. Q. Mus.

*Habitat*.—*North Queensland*: (Holotype) Laura near Cooktown (T. G. Sloane, July, 1916); (Allotype) Kuranda; Townsville (G. F. Hill); Herbert River, ex beach; Cairns and Gordonvale (J. F. Illingworth).

*Note*.—This species varies considerably in the extent of the yellow margin. In the types it is an almost continuous band, though never so extensive as in *C. bicolor* Sauss., where it is quite continuous round the thoracic tergites at least; whilst in some specimens of *C. sloanei* the posterior one-third to two-thirds of the lateral borders of the thoracic tergites is castaneous, and in others the posterior end of the yellow margin turns slightly inwards upon the pronotum. Where the yellow margin of the thoracic tergites is diminished the yellow maculae on the abdominal tergites are replaced by small dots. Those specimens with less yellow are usually larger, and I may be confusing two distinct species, but I regret that the short time at my disposal compels me to leave the genus in a rather chaotic state.

## Genus ANAMESIA Tepp.

## ANAMESIA ORNATA Tepp.

*Pseudolampra ornata* Tepp., *Trans. Roy. Soc. S. Aust.*, 1892, p. 98.

There is no doubt but that this beautiful species should be placed in *Anamesia*. None of the abdominal tergites is produced, and none of the thoracic tergites has a thickened margin.

*Habitat*.—*S. Australia*: Murray Riv. (H. S. Cope, *S. Aust. Mus.*).

*Note*.—With regard to the non-production of the postero-lateral angles of the distal abdominal tergites in *Anamesia* Tepp. and *Desmozosteria* Shelf., this character should not be taken as absolute, but only as compared with the angles in allied genera. Even within the limits of one species such as *A. lambii* Tepp., specimens in my collection show a variation from an evident though slight production, to an entire absence of any.

## ANAMESIA PUNCTATA Tepp.

*Pseudolampra punctata* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 97.

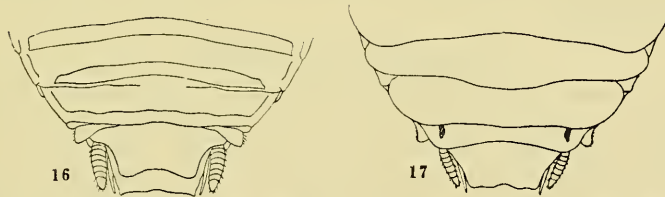
Described by Tepp from specimens obtained near the Fraser Range, Western Australia, by the Elder Expedition in 1891, and Shelford mentions it as from Tennant's Creek, South Australia. There are specimens in the South Australian Museum from other localities in South Australia, and Mjöberg in 1910-13 took it in Kimberley district, and at Derby in Northwest Australia. The species seems to vary considerably in colour, some specimens being much paler than others, and in some the punctures are almost obsolete. It is possible that *A. walkeri* Shelf. may be a very pale example.

## Genus DESMOZOSTERIA Shelford.

## DESMOZOSTERIA CINCTA Shelf. Text-figs. 16 and 17.

*Desmozosteria cincta* Shelf., *Trans. Ent. Soc. Lond.*, 1909, p. 303.

Shelford described the ♀ from Central Australia, and the type is in the Senckenberg Museum. A ♂ in the Queensland Museum from Charleville in the far west of Queensland is, I believe, conspecific, and descriptive notes supplementary to Shelford's description are added.



Text-fig. 16. *Desmozosteria cincta* Shelford. ♂. Apex of abdomen, dorsal aspect.  
Drawn from the allotype.

Text-fig. 17. *Desmozosteria cincta* Shelford. ♂. Apex of abdomen, ventral aspect.  
Drawn from the allotype.

Allotype ♂. Lateral margins of the abdominal tergites also ochreous, tips of the angles of the 9th tergite ochreous; 6th abdominal sternite sinuate posteriorly; supra-anal lamina (Text-fig. 16) subquadrate, angles obtuse, widely emarginate, fimbriate, extending to about  $\frac{2}{3}$  the length of the cerci, rufo-castaneous, with the posterior border widely ochreous; subgenital lamina (Text-fig. 17)

quadrate, nearly black, lateral margins concave, posteriorly widely emarginate, styles lateral. Posterior metatarsus not so long as the remaining segments combined, not spined beneath, with the pulvillus extending upwards the whole length of the segment in the form of a compressed ridge.

*Type material*.—Allotype ♂, No. 0/2897. Coll. Q. Mus.

*Habitat*.—*Queensland*: Charleville (L. Franzen).

#### DESMOZOSTERIA GROSSE-PUNCTATA Shelf (loc. cit.).

Shelford did not know the locality of his type in the Oxford Museum, but presumed it to be Australia. Basedow's specimen, however, agrees almost perfectly with Shelford's description, and his locality brings this species into line with the rest of the genus.

*Habitat*.—*Western Australia*, Dr. H. Basedow, one larval ♀, No. 40060, Aust. Mus., Sydney.

#### DESMOZOSTERIA ZEBRA Tepp.

*Polyzosteria zebra* Tepp., *Horn Exped. Cent. Aust.*, Vol. 2, 1896, p. 362.—*Platy-zosteria zebra* Shelf., *Trans. Ent. Soc. Lond.*, 1909, p. 288.—*Cosmozosteria zebra* Kirby, *Syn. Cat. Orth. Brit. Mus.*, Vol. i, 1904, p. 133.

Shelford was in doubt as to the generic position of this species, and, although I have seen the type, I have some uncertainty in placing it in *Desmozosteria* Shelf. Tepp's description is good as far as it goes, but the margins of all the thoracic tergites are definitely thickened, the postero-lateral angles of the 5th abdominal tergite are not produced, of the 6th scarcely, and of the 7th not much. In *D. zebra* the cerci are not short nor flattened, the spines of the tibiae are triseriately arranged on the outer aspect, and the caudal metatarsus is as long as the remaining segments combined, is unspined beneath, and bears a long pulvillus; the other segments have large pulvilli, and the supra-anal lamina is rounded, but damaged. The angulation of the caudal tergites, as a character, does not appear to be quite reliable, for in some species of *Cosmozosteria* the angles of the 5th tergite are a little produced, and those of the 6th usually more so; and in *Anamesia* and *Desmozosteria* the 7th tergite sometimes has a slight backward production.

#### Genus TEMNELYTRA Tepp.

This quite distinct genus includes four species, of which one is added in the present paper. In all, the posterior metatarsus is shorter than the remaining tarsal segments combined, and in two of the species, *truncata* Br. v. W. and *subtruncata* Tepp., there is a remarkable modification of the tarsal claws; the external claw being abortive and not so long as the somewhat asymmetrical arolium, to the outer side of which it appears to be attached. It is only with considerable magnification that the abortive claw can be distinguished, the tarsus appearing to terminate in a single claw and large arolium. In specimens in which only four tarsal segments are found, the first (metatarsus) and second are longer than normal, and the metatarsal pulvillus extends some distance upwards. The first abdominal tergite of the ♂ bears an organ ("gland opening") which varies in each species, but always takes the form of a symmetrical tumefaction bearing a tuft of bristles on its cephalic aspect. Shelford (1909) figures the tergite of *T. truncata*.

Key to the species of *Temnelytra*.

- (4) 1. Metanotum not bearing vestigial wings, claws asymmetrical.  
 (3) 2. Larger size, testaceous, abdominal tergites with lateral yellow border ..... *truncata* Br. v. W.  
 (2) 3. Smaller size, fuscous, abdominal tergites concolorous ..... *subtruncata* Tepp.  
 (1) 4. Metanotum bearing vestigial wings, claws symmetrical.  
 (6) 5. Pronotum with two prominent fuscous vittae ..... *undulivitta* Walk.  
 (5) 6. Pronotum fuscous, with pale lateral borders ..... *tryoni* Shaw.

## TEMNELYTRA TRUNCATA Brunner v. W.

*Polyzosteria truncata* Br. v. W., *Nouv. Syst. Blatt.*, 1865, p. 217.—*Temnelytra harpuri* Tepp., *Trans. Roy. Soc. S. Aust.*, 1893, p. 39.—*Zonioploca harpuri* Kirby, *Syn. Cat. Orth. Brit. Mus.*, Vol. i, 1904, p. 137.—*Temnelytra truncata* Shelf., *Trans. Ent. Soc. Lond.*, 1909, p. 305, Pl. ix, figs. 37a and 37b.

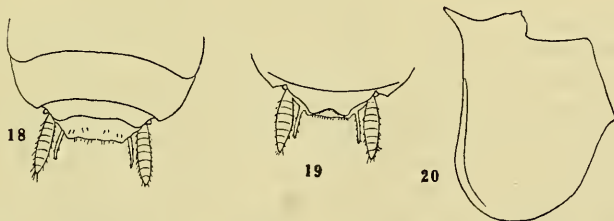
There is some question as to Tepper's types of *T. harpuri* as the specimen labelled "Type of ♂" is really a ♀, captured after the publication of his description, and although he described both sexes, there is no ♂ in the South Australian Museum. However, this species is almost certainly identical with Brunner's *T. truncata* of which he described the ♀ in 1865, and Shelford (1909) figured parts of the ♂. The tarsal claws of this species are asymmetrical, the outer claw being modified. Brunner v. Wattenwyl (1865), in addition to New South Wales, gives New Zealand as a locality for this species. This is possibly an error, Brunner not differentiating the New Zealand species *T. undulivitta* subsequently described by Walker (1868).

## TEMNELYTRA SUBTRUNCATA Tepper.

The types of ♂ and ♀ are in the National Museum, Melbourne, and this is quite a distinct species. The first abdominal tergite of the ♂ bears a medial gland opening surmounted by bristles, resembling that of *truncata* Br. v. W., but quite different from that of *undulivitta* Walk. (q.v.). This species and *truncata* share several characters in common, such as the absence of wing vestiges, similarity of structure of the first abdominal tergite, and asymmetry of the tarsal claws.

## TEMNELYTRA TRYONI, n. sp. Text-figs. 18 and 19.

♂. Head testaceous, with the vertex dark fuscous, and a dark longitudinal band, narrower in the middle, occupying most of the frons; antennae fuscous, hirsute. Pronotum with the disc dark fuscous laterally, bordered yellow, the extreme margin fuscous. Tegmina pale fuscous bordered yellow, extending to the posterior margin of the first abdominal tergite. Venation, except the *vena*



Text-fig. 18. *Temnelytra tryoni* Shaw. ♂. Apex of abdomen, dorsal aspect.  
 Drawn from the holotype.

Text-fig. 19. *Temnelytra tryoni* Shaw. ♂. Apex of abdomen, ventral aspect.  
 Drawn from the holotype.

Text-fig. 20. *Scabina antipoda* Shelford. ♂. Left tegmen.

*dividens*, obscure. Wing vestiges lateral, lobiform, separated from the metanotum. Abdominal tergites fuscous with pale borders; 1st abdominal tergite with a medial, broad-based triangular tumefaction furnished cephalically with bristles; 7th tergite sinuate caudally. Supra-anal lamina (Text-fig. 18) transverse, fimbriate, widely emarginate, lateral margins slightly concave. Subgenital lamina (Text-fig. 19) transverse, caudal margin concave; styles smooth, long, not sharply pointed. Abdominal sternites fuscous. Legs testaceous; coxae with some fuscous markings; posterior metatarsus nearly as long as the remaining segments combined, biserially spined beneath, pulvillus short, claws symmetrical.

♀. *Larva*. In general colouring similar to the adult. Postero-lateral angles of the mesonotum scarcely, and of the metanotum well produced backwardly. Subgenital lamina of the usual Blattine larval form.

*Length*.—20 mm. (approximately).

*Type material*.—Holotype ♂, No. 0/2896 (in two parts); and paratype, larval ♀, No. 0/2896a. Coll. Q. Mus.

*Habitat*.—Queensland: National Park, Lamington Plateau (3,000 ft., H. Tryon, Jan., 1917).

*Note*.—The holotype is rather damaged, and the apex of the abdomen is on a separate card; but the species is quite distinct and the paratype is in more perfect condition.

#### TEMNELYTRA UNDULIVITTA Walker.

*Periplaneta undulivitta* Walk., *Cat. Blatt. Brit. Mus.*, 1868, p. 144.

This species much resembles another New Zealand one, *Cutilia sedilloti* Bol. (1882), from which its tegminal structure at once distinguishes it. In common with the new species *T. tryoni* mihi it has symmetrical tarsal claws, a fairly similar form of 1st abdominal tergite, and wing vestiges separated from the metanotum; although in the only ♂ in my collection the postero-lateral angle of the metanotum presents a well marked notch, and the wing vestige, instead of being separate, is only evidenced by a lateral curved crumpling. The subgenital lamina of the larval ♀ is of the usual Blattine form.

*New Localities*.—Chatham Is. (1887, J. J. Fougère, teste F. W. Hutton). *New Zealand*: Invercargill, The Hump, 3,500 ft., 1912; Longwoods, 1913; and Hunter Mts., near Green Lake (under stones, 1919, A. Philpott).

#### Genus SCABINA Shelford.

SCABINA ANTIPODA Shelford. Text-fig. 20.

*Pelmatosilpha* (?) *antipoda* Kirby, *Ann. Mag. Nat. Hist.* Ser. 7, xii, 1903, p. 376.—*Scabina antipoda* Shelf., *Trans. Ent. Soc. Lond.*, 1909, p. 306.

Kirby described this species from Queensland, but neither he nor any subsequent writer appears to have noticed a strong spine which extends forwards and outwards from the antero-external angle of the quadrate tegmen (Text-fig. 20). This is present in the ♂ only, the ♀ having no trace of it. The object of this spine is to me obscure, and I can only suggest that it acts as a support to the angles of the pronotum, which is very wide, and which in the ♂ can get no support from the humeral angle of the tegmen, since in that sex the costal portion of the tegmen is deflected. This deflection is not found in the ♀, nor is the spine.

This species occurs commonly under the bark of trees in the Rain Forest areas of South Queensland, at an elevation of about 2,000 ft.

## Genus METHANA Stål.

Shelford (1909) includes eight species in this genus; Hanitsch (1915) added *semimarginalis* from Borneo, and to these, three are added in the present paper, making twelve in all, including *pallipalpis* Serv. of which the type is lost and the position uncertain. Of two of these species, *semimarginalis* Hanitsch and *hosei* Shelford, only the ♀ is known; but in the remaining nine (excluding *pallipalpis* Serv.) the supra-anal lamina of the ♂ does not show any great variation in form. It is usually subquadrate, fimbriate, and with some emargination; in *curvigera* Walk. it is medially carinate, in *marginalis* Sauss. it is entire or has a small medially-situate backward production, in *sjöstedti* mihi it has a deep angular emargination, and in *convexa* Walk. it is almost bilobate. The subgenital lamina of ♂ is subquadrate and its posterior margin may have a wide, shallow, rounded emargination as in *marginalis* Sauss., *soror* Sauss. and *mjöbergi* mihi; may be bilobate as in *sjöstedti* mihi; deeply and angularly emarginate with divergent postero-lateral angles (resembling *Cosmozosteria*) as in *curvigera* Walk. and *parva* mihi; or with blunt projections at the base of the styles as in *convexa* Walk. In all the species known to me the styles are long, slender, slightly tapering, and not very sharply pointed, with the exception of *sjöstedti* mihi whose styles are very different from those of the other species, being broad, flattened and acuminate, somewhat resembling a Malay "kris."

*Ootheca*. In the Queensland Museum there is a ♀ *M. marginalis* Sauss. with an attached ootheca carried suture downwards, and this is the only ootheca of the genus I have seen. I cannot say whether this position is usual, but the position of the ootheca, as a character, is not quite reliable, a ♀ *Blattella germanica* L. in my collection, for instance, carrying it uppermost, although the lateral position is given as a generic character.

In the key to the species below, the form of the laminae has not been used, as this is not constant enough, and relates to the one sex only. The presence or absence of a flavid humeral streak, the colour and markings of the pronotum, and particularly the dark markings of the vertex and frons afford valuable characters, and apply to both sexes.

Key to the species of *Methana*.

- (4) 1. Uniform castaneous.
- (3) 2. Larger size, over 30 mm. .... *magna* Shelf.
- (2) 3. Smaller size, under 30 mm. .... *convexa* Walk.
- (1) 4. Not uniform castaneous.
- (6) 5. Pronotum testaceous, with fuscous vittae ..... *curvigera* Walk.
- (5) 6. Pronotum castaneous, with flavid margins.
- (14) 7. Pronotum not bordered flavid posteriorly.
- (13) 8. Castaneous disc of the pronotum immaculate.
- (10) 9. Tegmina without a flavid humeral streak ..... *semimarginalis* Hanitsch.
- (9) 10. Tegmina with a flavid humeral streak.
- (12) 11. Flavid humeral streak longer than the anal area,  
dark band of the vertex not continuous with that  
of the frons ..... *marginalis* Sauss.
- (11) 12. Flavid humeral streak not longer than the anal  
area, dark band of the vertex continuous with  
that of the frons ..... *parva* Shaw.
- (8) 13. Castaneous disc of the pronotum with two flavid  
maculae ..... *soror* Sauss.
- (7) 14. Pronotum bordered flavid posteriorly.
- (16) 15. Tegmina uniformly castaneous ..... *hosei* Shelf.
- (15) 16. Tegmina with a flavid humeral streak.



- (18) 17. Vertex black ..... *mjöbergi* Shaw.  
 (17) 18. Vertex testaceous.  
 (20) 19. Frons immaculate ..... *sjöstedti* Shaw.  
 (19) 20. Frons with a broad castaneous band ..... *papua* Shelf.  
       Species incertae sedis ..... *pallipalpis* Serv.

## METHANA CONVEXA Walker.

*Periplaneta convexa* Walk., *Cat. Derm. Salt. Brit. Mus.*, Suppl. Blatt., 1869, p. 152.—*Methana convexa* Kirby, *Syn. Cat. Orth. Brit. Mus.*, Vol. i, 1904, p. 136.—*Methana rufescens* Kirby, *Ann. Mag. Nat. Hist.* (7) xii, 1903, p. 374 (teste Shelford).—*Paraphoraspis* (?) *castanea* Tepp., *Trans. Roy. Soc. S. Aust.*, 1894, p. 173.

This species is distributed over a long range on the eastern side of Australia from Victoria to North Queensland, and occurs not only near sea level, but at high elevations such as Uralla, N.S.W., 3,500 ft. (W. W. Froggatt) and Tambourine Mountain, 2,000 ft. (auct.).

Tepper's type of *Paraphoraspis* (?) *castanea* is in the South Australian Museum, and is a ♀ of this species, and came from the most southerly recorded locality, Howbullan, Victoria.

## METHANA PARVA, n. sp. Text-fig. 21.

Closely resembling *M. marginalis* Sauss., but differing from it in the following points: (1) Size much smaller than *marginalis* Sauss.; (2) flavid humeral streak not extending beyond the anal area; (3) subgenital lamina of the ♂ longer, deeply emarginate; (4) castaneous band of the frons joining that of the vertex; (5) tegmina not extending beyond the body.

The flavid humeral streak is in this species confined to the costal area, not extending, as in *marginalis* Sauss., to the tips of the 1st or 2nd branches of the radius; and in *marginalis* Sauss. the costal area is longer than the anal area. The subgenital lamina of the ♂ is in *marginalis* Sauss. transverse with a straight posterior margin, whilst that of this species (Text-fig. 21) is prolonged backwards, deeply and widely emarginate, and ends in divergent points. In all my ♂ specimens, one of these points is longer than the other, but this appears to be a deformity, the lamina of a larval ♂ being symmetrical. This shortening of one of the postero-lateral angles of the subgenital lamina commonly occurs in the ♂ of the genus *Cosmozosteria* Stål. In this species the dark band of the frons is always joined to the dark vertex; in *marginalis* Sauss. this is never so, and a large number of specimens have been examined. This character also serves to separate the larvae. The anal veins all terminate on the *vena dividens*, none of them reaching the margin of the tegmen. This character is common to all the species of *Methana* in my collection.

*Length*.—♂, 20.0-21.0 mm.; ♀, 20.0-22.0 mm.

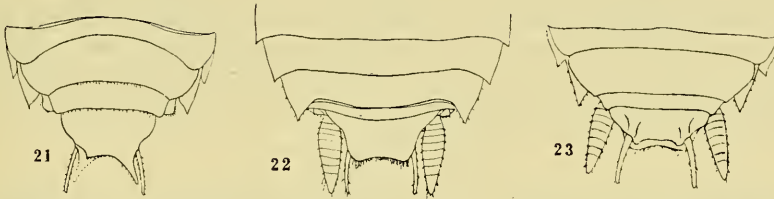
*Type material*.—Holotype ♂, No. 0/2873; allotype ♀, No. 0/2873a; 8 paratypes. Coll. Q. Mus.

*Habitat*.—*Queensland*: Green Is., Moreton Bay; Tambourine Mt., 2,000 ft. (auct.); National Park, Lamington Plateau, 3,000 ft. (H. Hacker).

*Note*.—The species which I take to be Saussure's *marginalis* is considerably larger than this, averaging 28 or 29 mm. in length, and is common in the Brisbane district. Saussure's description gives 29 mm. as the length of the ♀, and as the two are evidently not conspecific, I am regarding the smaller species as the new one. It is a curious fact, however, that, when in 1914, Prof. E. B. Poulton kindly brought me some duplicates from the Hope Museum, the single specimen labelled

*Methana marginalis* Sauss. agreed entirely with my *parva*, and it seems probable that the two species are mixed up in the older collections. Saussure's type is in the Paris Museum.

Variety HACKERI (with abbreviated tegmina).—In the Queensland Museum there is a ♀ (No. 0/2904) taken in Dec., 1921, by Mr. H. Hacker at the Queensland National Park, in which the tegmina are truncate, not extending beyond the 2nd abdominal tergite, and the wings are lobiform. The anal is shorter than the costal area.



Text-fig. 21. *Methana parva* Shaw. ♂. Apex of abdomen, ventral aspect. Drawn from the holotype.

Text-fig. 22. *Methana mjobergi* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from paratype No. 0/2874. Coll. Q. Mus.

Text-fig. 23. *Methana mjobergi* Shaw. ♂. Apex of abdomen, ventral aspect. Drawn from paratype No. 0/2874. Coll. Q. Mus.

METHANA MJÖBERGI, n. sp. Text-figs. 22 and 23.

Vertex testaceous, frons occupied by a broad, dark, castaneous streak with irregular edges, and broadening below into a curved, transverse marking; antennae fuscous, labrum bilobate. Pronotum with wide, flavid, anterior and lateral margins, widest at the postero-lateral angles, posterior margin narrowly flavid, disc dark castaneous, paler centrally, and extending in a small medial angular projection towards the vertex. Tegmina castaneous, about the length of the body, with a flavid humeral streak. Legs testaceous, spines brown, tibiae of the ♂ brownish. Posterior tarsi typically *Methana*. Arolia large. Abdomen fusco-castaneous, lateral margins of the tergites paler. Supra-anal lamina (Text-fig. 22) of the ♂ quadrate, fimbriate, apex widely and slightly concave; of the ♀ more produced and more deeply emarginate. Subgenital lamina (Text-fig. 23) of the ♂ subquadrate, widely and roundly emarginate; styles long, round, slender.

*Length*.—♂, 20.0-22.0 mm.; ♀, 20.0 mm.

*Type material*.—Holotype ♂ and allotype ♀, Stockholm Mus.; two paratypes. No. 0/2874. Coll. Q. Mus.

*Habitat*.—N. Queensland: Malanda (2,400 ft.); Cedar Creek (E. Mjöberg, 1910-13).

METHANA SJÖSTEDTI, n. sp.

Head testaceous, immaculate; antennae pale fuscous; labrum bilobate. Pronotum with a broad flavid margin all round, narrowly edged with fuscous, widest at the postero-lateral angles, disc occupied by a bilobate castaneous macula. Tegmina castaneous, shorter than the body, with a flavid humeral streak extending to more than half their length. Legs dark testaceous, spines brown, tibiae of the ♂ darker, except at their upper and outer aspect; posterior tarsi typical of the genus, arolia large. Abdomen dark castaneous above and below. Supra-anal lamina of the ♂ quadrate, deeply and angularly emarginate, angles sharp;

of the ♀ produced, widely and roundly emarginate; subgenital lamina of the ♂ subquadrate, with a shallow emargination and rounded angles, being almost bilobate; styles long, wide, flattened, acuminate.

*Length*.—♂, 25.0 mm.; ♀, 25.5 mm.

*Type material*.—Holotype ♂ and allotype ♀, Stockholm Mus.; 2 paratypes ♂, Queensland Mus., No. 0/2899.

*Habitat*.—N. Queensland: Atherton (2,466 ft., E. Mjöberg 1910-13), Stockholm Mus.; Kuranda (F. P. Dodd and J. F. Illingworth), Queensland Mus.

*Note*.—This species is near *soror* Sauss. and *mjöbergi* mihi; the flavid humeral streak is intermediate in length between the two, the flattened styles and shorter tegmina distinguish it from either, and the vertex and frons are immaculate, whilst *soror* Sauss. has a dark macula on the vertex, and *mjöbergi* mihi one on the frons. *M. parva* mihi is smaller; the flavid humeral streak is very short, and both vertex and frons are maculate.

#### Genus TRYONICUS nov.

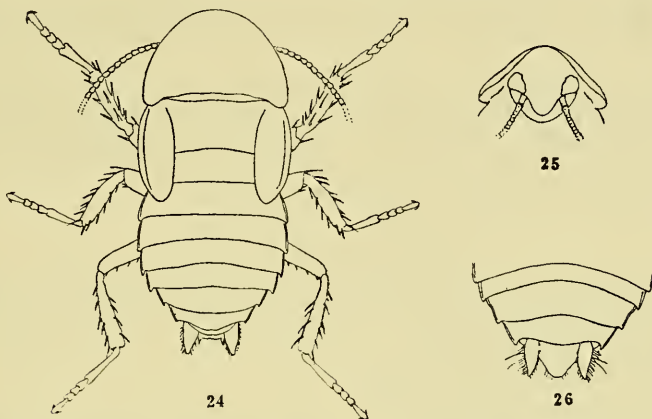
Distance between the eyes on the vertex considerably greater than that between the antennary sockets. Posterior tibiae triseriately spined on their outer aspect. Posterior metatarsi at least as long as the remaining segments combined, biseriately spined beneath; remaining segments spined beneath; all the posterior tarsal pulvilli small, apical; arolia absent. Tegmina of the ♂ vestigial, lanceolate, extending beyond the metanotum; wings vestigial, lateral, membranous, folded; ♀ entirely apterous.

*Note*.—It would appear that a new genus is required for the reception of the curious cockroach described below, with its wide apart eyes, long lanceolate tegminal vestiges, spined tarsi and absence of arolia. It should perhaps come into the *Blatta* group of the Blattinae, but, as it cannot be placed in any of the existing genera, I propose to erect for it the new genus *Tryonicus*, named after its discoverer, Mr. H. Tryon, the distinguished Government Entomologist of Queensland.

#### TRYONICUS MONTANUS, n. sp. Text-figs. 24, 25 and 26.

Black, shining. Vertex and frons black, mouth parts brownish; antennae not so long as the body, hirsute, proximal segments cylindrical, and distal segments pyriform; eyes wider apart on the vertex than the antennary sockets (Text-fig. 25). Pronotum parabolic, truncate anteriorly, exposing the vertex, posterior margin slightly concave, lateral margins narrowly thickened and everted, as are also the lateral margins of the meso- and metanotum, and of the abdominal tergites. Vestigial tegmina of the ♂ long, narrow, completely separated from the mesonotum (Text-fig. 24), thickened margin extending to the apex, in length extending about half-way across the second abdominal tergite; wing vestiges small, lateral, membranous, testaceous, well separated from the metanotum, with the anal portion once folded longitudinally underneath the anterior portion, not folded again, but projecting beyond the outer third of the costal margin; ♀ completely apterous. Postero-lateral angles of the abdominal tergites backwardly produced, apices blunt; posterior margin of the 7th abdominal tergite sinuate. Supra-anal lamina of the ♂ trigonal, apex truncate, lateral margins slightly thickened and everted, caudal margin pale, sparsely fimbriate, extending to about half the length of the broad-based cerci, which on the dorsal aspect are flattened, with well defined edges, and on the ventral aspect are convex, rough, and densely hirsute; of the ♀ trigonal, extending to more than three-fourths the length of the cerci (Text-

fig. 26). Subgenital lamina of the ♂ triangular, styles issuing from well defined notches, the lamina and the styles being sparsely furnished with long hairs; of the ♀, of the usual Blattine form, but sharply compressed towards the apex. Disc of the abdominal sternites castaneous. Legs dark castaneous, trochanters and tarsi paler, posterior tibiae of the ♂ with a constriction below the knee, and



Text-fig. 24. *Tryonicus montanus* Shaw. ♂. Whole insect ( $\times 4$ ). Drawn from the holotype.

Text-fig. 25. *Tryonicus montanus* Shaw. Vertex of head, showing eyes and antennae.

Text-fig. 26. *Tryonicus montanus* Shaw. ♀. Apex of abdomen, dorsal aspect. Drawn from the allotype.

the segment somewhat dilated distally; those of the ♀ cylindrical. Inner aspect of the tibiae furnished with a long brush; all the tarsal segments spined beneath, hirsute, and with small pulvilli; posterior metatarsus of the ♂ longer, and of the ♀ about as long as the remaining segments combined; arolia absent.

*Length*.—♂, 11.0-12.0 mm.; ♀, 13.0-16.0 mm.; of tegminal vestiges 3.5 mm.

*Type material*.—Holotype ♂, No. 0/2872; allotype ♀, No. 0/2872a and 8 paratypes, 2 ♂ and 6 ♀, Coll. Q. Mus.; 1 paratype ♂, Aust. Mus., No. K47293.

*Habitat*.—*Queensland*: Lamington Plateau, National Park (3,000 ft. H. Tryon, 1917-18; A. J. Turner, 1921). *New South Wales*: Dorrigo (3,500 ft. A. Musgrave, Dec., 1922).

#### Genus *STYLOPYGA* Fischer von Waldheim.

##### *STYLOPYGA SHELFORDI*, n. sp.

Black, nitid, entirely apterous. Head with the margin of the clypeus, the labrum, and palpi rufo-fuscous; also the antennae, except the proximal and one or two following segments which are darker. Dorsal surface furnished with hairs set in shallow pits, denser caudally; lateral margins of all the tergites, and posterior margins of the distal tergites with a thin fringe of stiff hairs. Posterior margin of the 6th tergite sinuate; supra-anal lamina of the ♂ subtriangular, apex emarginate, cerci long and flattened; subgenital lamina of the ♂ transverse, setose, posterior margin straight; styles small, slender; a broad fuscous streak on either side of the subgenital lamina. Legs rufo-fuscous; posterior tibiae darker, and somewhat dilated in the ♂; coxal ridges punctate.

coxal borders narrowly pale brownish-yellow; posterior metatarsus long, biseriately spined for its whole length beneath, pulvillus apical; second tarsal segment also spined beneath, arolia moderate in size.

*Ootheca* short, deep, smooth, with eight divisions on each side.

*Length*.—♂, 16-17 mm. ♀, 19-20 mm.

*Type material*.—Holotype ♂, No. 0/2870; and allotype ♀, No. 0/2870a; and several paratypes, Coll. Q. Mus. Paratype with ootheca attached, Coll. Stockholm Mus.

*Habitat*.—*S. Queensland*: Samford, Capalaba, Green Is., Tambourine Mt. (auct.), Christmas Creek (E. Mjöberg). *N. Queensland*: Malanda (E. Mjöberg).

*Note*.—This species has been known to me for several years from various localities in South Queensland, and I welcome the opportunity of paying a tribute to Shelford's memory by naming it after him.

#### STYLOPYGA PAPUAE, n. sp.

Closely allied to *shelfordi* mihi, but is castaneous rather than piceous, the antennae are darker, the coxae are yellowish-brown darkening proximally, the coxal borders are broadly yellow, the tibiae of the ♂ are not dilated, and the pronotum is relatively wider.

*Length*.—♂, 17.0 mm.; ♀, 18.0 mm.

*Type material*.—Holotype ♂, No. 0/2871; allotype ♀, No. 0/2871a; and paratype ♂, No. 0/2871b, Coll. Q. Mus.

*Habitat*.—*S. E. Papua*: Kui-ara (on the coast; auct. 1914-15).

#### STYLOPYGA IMMUNDA Shelford.

Shelford described this species as from Queensland, and says the type is in the Stockholm Museum. My collection contains specimens from the northern part of that State, and amongst the Mjöberg material collected in 1910-13 are others from the same area. *S. immunda* appears to vary considerably in size, and the colour is nigro-castaneous rather than "piceous." A large proportion of cockroaches described as black are seen to be really dark castaneous when examined in a good light and under magnification.

To Shelford's description may be added: Pronotum subtruncate anteriorly, exposing the vertex; no wing vestiges, but postero-lateral angles of the metanotum slightly produced. Sixth and seventh tergites with sparse hairs. Coxal ridges (Shaw, 1922) punctate; posterior metatarsi long, biseriately spined beneath.

*Ootheca* large, smooth, deep, with about 8 divisions on each side.

*Length*.—♂, 21.0 mm.; ♀, 22.5-26.0 mm.

*Habitat*.—*N. Queensland*: Cooktown (T. G. Sloane); Malanda and Bellenden Ker (E. Mjöberg); Cairns "ex log, ex bark" (J. F. Illingworth).

#### Genus PERIPLANETA Burmeister.

##### PERIPLANETA AMERICANA Linné.

This cosmopolitan species is widely spread in Australia, and I also have it from New Guinea, New Hebrides, and Lord Howe and Norfolk Islands. Its habits appear to vary somewhat. In New Guinea I found it common in houses, but *australasiae* Fabr. was much commoner in ships; whilst in Australia the latter is the common species breeding about dwellings, and, although *americana* L. is frequently found in houses, it usually flies in from outside and one does not see its larvae about. When both species live together in the same place, *australasiae*

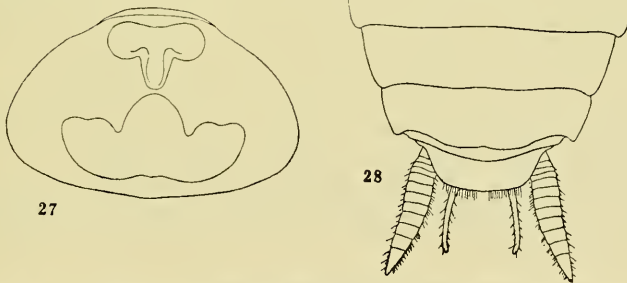
Fabr. will probably be found gradually to displace *americana* L., just as when *Supella supellectilium* Serv. invades places already occupied by *Blattella germanica* L., it tends to oust the latter. That *P. americana* L. can harbour the vibrios of Asiatic cholera has been demonstrated by M. A. Barber (1913).

PERIPLANETA AUSTRALASIAE Fabricius.

Shelford ("A Naturalist in Borneo," 1916, p. 115) states that *australasiae* as a specific name refers to Australia, whence the older naturalists thought it came; and, on the following page, that the species is only a rare immigrant to Australia. Whatever may have been the case when Shelford wrote, this cockroach is now well established in Australia, and, as to the name, I think Shelford must have been in error in supposing that Fabricius can have used it in any sense other than "of Southern Asia." The word Australasia as applied to Australia and New Zealand was not in use in 1775 when Fabricius described the species, nor was it commonly so until about 60 years later. Burmeister (1838) queried Fabricius's locality, and thought the species American, also stating that Fabricius's records were not infrequently unreliable. In Australia this species is quite common about dwellings, and together with the following new species usually conceals its ootheca by covering it over with mud or some convenient loose debris, and I have seen them numerous placed in chinks of a rough outhouse door, and so covered as to be difficult to discern. The ootheca is frequently attacked by one of the Chalcididae, *Geniocerus* (*Tetrastichus*) *hagenowi* Ratz., and about fifty individuals may emerge from one ootheca. Unlike *americana* L., the larvae of *australasiae* Fabr. may be found in all instars in dwelling houses, but I have never seen one which would agree with Shelford's (1911) figure of Specimen I.13767 from the British Museum collection of Blattidae, although a large number were examined with this in view.

PERIPLANETA IGNOTA, n. sp. Text-figs. 27 and 28.

This cockroach has been known to me for some considerable time, having occurred in my own house together with the two preceding species, but it was not



Text-fig. 27. *Periplaneta ignota* Shaw. Pronotum showing outline of the pale macula.

Text-fig. 28. *Periplaneta ignota* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

recognized as separate until a good series was obtained from the caretaker's isolated room, perched at the end of a jetty at Wynnum, to the south of the mouth of the Brisbane River. Since then I have seen it in other collections from localities in Queensland, but it is not to be found in the older collections of the Australian Museum, Sydney, or the Macleay Museum.

The following table gives the differences between the three species:

	<i>P. australasiae</i> Fabr.	<i>P. americana</i> Linné.	<i>P. ignota</i> Shaw.
Yellow humeral streak of tegmen	present.	absent.	absent.
Pale marking like an inverted mushroom on dark pronotum	absent.	absent.	present.
1st abdl. tergite ♂	ample, with gland opening.	narrow, with no gland opening.	ample, with gland opening.
7th abdl. tergite ♂	sinuate, angles backwardly produced.	subsinuate, angles not backwardly produced.	sinuate, angles backwardly produced.
Supra-anal lamina ♂	short, lateral margins concave, wide, shallow emargination, or with posterior margin straight.	produced, membranous distally, lateral margins convex, deep acute angular emargination.	short, rounded posteriorly, no emargination.
Supra-anal lamina ♀	emargination right angled.	emargination acute angled.	emargination right angled.

This table shows that *ignota* mihi is nearer to *australasiae* Fabr., but beyond the pale pronotal marking which is sometimes obscure, it can readily be separated from that species by the absence of the yellow humeral streak, and by the different form of the supra-anal lamina (Text-fig. 28) of the ♂; and this lamina is quite distinct in *americana* L. from that of either of the other two species; besides which, the postero-lateral angles of the abdominal tergites are not backwardly produced in *americana* L. The two portions of the pale pronotal marking, as shown in Text-fig. 27, are usually joined together into one macula.

*Length*.—♂ and ♀, 25.0-30.0 mm. Tegmina ♂, 24.0-28.0 mm.; ♀, 23.0-25.0 mm.

*Type material*.—Holotype ♂, No. 0/2868, and allotype ♀, No. 0/2868a, Coll. Q. Mus. Several paratypes, Colls. auct., Q. Mus., Stockholm Mus.

*Habitat*.—*Queensland*: Wynnum, Cleveland, Cannon Hill, Goodna (auct.), Brisbane distr. (J. C. Bridwell, H. Hacker), Noosa (W. R. Colledge), Burdekin distr. (L. Kelly), Toogoolowah (R. L. Higgins), Colosseum (E. Mjöberg).

#### Genus DORYLAEA Stål.

##### DORYLAEA FLAVICINCTA de Haan.

*New locality*.—Panaeati Is., Louisiade Archipelago. (Revd. F. J. Barnes, 1915. Coll. auct.).

##### DORYLAEA FLAVIFRONS, n. sp. Text-figs. 29 and 30.

Uniformly castaneous dorsally. Antennae dark fuscous; vertex and frons castaneous, frons occupied by three orange-yellow maculae arranged in a triangle with its base towards the mouth, and an orange-yellow line separating the castaneous vertex from the eyes and antennary fossae; margin of the clypeus

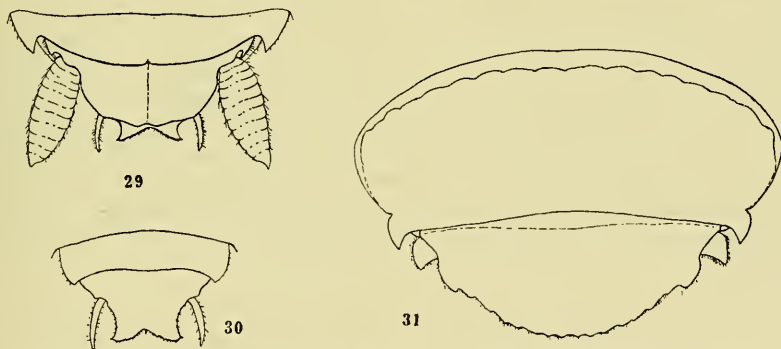
and labrum rufous, maxillary palpi pale. Tegmina semi-corneous extending to the 3rd abdominal tergite, venation obscure, anal vein terminating at the junction of the middle and outer thirds of the sutural margin. Posterior margin of the 7th abdominal tergite sinuate. Supra-anal lamina (Text-fig. 29) of the ♂ rounded, faintly emarginate, with a median longitudinal carina, extending to about half the length of the cerci; of the ♀ longer and more deeply emarginate. Subgenital lamina (Text-fig. 30) of the ♂ produced, widely emarginate, terminating in divergent points. Styles long, slightly incurved, a little longer than the lamina. Coxae pale, with large dark maculae, remainder of the legs castaneous, strongly spined; posterior tibiae, on the outer side, triseriately spined; posterior metatarsus long, biseriately spined beneath, 2nd segment spined beneath, 3rd and 4th segments unspined, pulvilli, 1st and 2nd apical, 3rd and 4th large. Genicular spines 0, 1, 1. Arolia large.

*Length*.—♂, 26.0 mm.; ♀, 25.0 mm.

*Type material*.—Holotype ♂, and allotype ♀, New Ireland, Coll. Macleay Mus., Sydney. Paratypes 3, Coll. auct.

*Habitat*.—New Ireland (Types); New Hebrides (W. W. Froggatt); ? New Zealand (A. Philpott).

*Note*.—The record from New Zealand is probably one of an introduced species, reaching that country in imported fruit (vide Shaw, 1922, p. 230).



Text-fig. 29. *Dorylaea flavifrons* Shaw. ♂. Apex of abdomen, dorsal aspect. Drawn from the holotype.

Text-fig. 30. *Dorylaea flavifrons* Shaw. ♂. Apex of abdomen, ventral aspect. Drawn from the holotype.

Text-fig. 31. *Ancaudellia serratissima* Brunner v. Wattenwyl. Apex of abdomen, Drawn from a specimen in the Macleay Museum.

#### Subfamily PANCHLORINAE.

#### Genus ONISCOSOMA Brunner v. Wattenwyl.

#### ONISCOSOMA MINIMA, n. sp.

♂ fully winged. Head nearly black, mouth parts testaceous, a yellow longitudinal streak on the vertex; antennae with the sockets pale, 1st segment large and brown proximally, the two or three succeeding segments testaceous, and the remainder brown, with, in the larva, a couple of white segments towards the apex. Pronotum bearing numerous coarse tubercles, nearly semicircular anteriorly, concealing the head, convex posteriorly; a fine median longitudinal line is visible, and the widest part of the pronotum is about two-thirds along this

line from the anterior margin; anterior half testaceous with some brown markings, posterior half occupied by a fusco-castaneous macula with irregular edges and diverticula, a few fuscous spots around the margin. Tegmina hyaline with brown mottling, chiefly along the veins, but sometimes on the membrane between them. Supra-anal lamina triangular, rounded at the apex; cerci broad, blunt, somewhat incurved; subgenital lamina large, extending well beyond the supra-anal, testaceous, with a large dark macula occupying the disc, the lateral margin on the right side being more deeply emarginate; two slender acuminate styles. Abdominal sternites testaceous, with some opaque white markings laterally; stigmata well marked, fuscous. Legs testaceous. Larvae darker generally than the adult, with numerous fuscous markings, dots and tubercles.

*Length*.—14.0 mm.; tegmen 11.0 mm.; body 9.0 mm.

*Type material*.—Holotype ♂, No. 0/2867, Coll. Q. Mus.; paratypes, 2 larvae.

*Habitat*.—Queensland: Bunya Mts. (H. Tryon, Oct., 1919).

#### Subfamily PANESTHIINAE.

#### Genus PANESTHIA Serville.

Some years ago it was suggested by me (1914) that species of the genus *Panesthia* bit off their flying organs for one another, and recently Mr. A. M. Lea, of Adelaide, told me he had observed this taking place. The reason for this is apparently to enable the insect to move more readily backwards and forwards amongst the loose soil or dessicated wood in which it lives. The two common Australian species are *australis* Br. v. W. and *laevicollis* Sauss. (unless indeed I am mixing up the latter with *cribrata* Sauss.); *australis* Br. v. W. occurs in Victoria and New South Wales, *laevicollis* Sauss. in Queensland and the north part of New South Wales, where, in the New England district, the two species overlap. Both species appear to live in families, and one usually finds associated together a pair of adults and from about 12 to 20 larvae in different ecdyses, from the penultimate down to quite early ones, and it is only where the insects are very abundant that one loses sight of this familial habit. Probably both species are viviparous.

#### Genus ANCAUDELLIA, nov. Text-fig. 31.

Mr. A. N. Caudell (1924) suggests the need for removing *Panesthia serratissima* Br. v. W. to another genus on account of the structure of the postero-lateral angles of the 7th abdominal tergite. With this I quite agree, and, as I have before me several specimens of ♂, ♀, and larva from various localities, I would propose *Ancaudellia* as the name of a new genus, of which the type would be *serratissima* Br. v. W. It differs from *Panesthia* Serville as follows, and the table given below may be of some use in separating the genus from its immediate neighbours: Lateral margin of the 7th abdominal tergite deeply notched anterior to the postero-lateral angle which is somewhat laterally divergent, though produced backwards at the apex (Text-fig. 31).

- |   |                               |
|---|-------------------------------|
| (4) 1. Sixth abdominal tergite with the postero-lateral angles not, or but slightly produced.                       |                               |
| (3) 2. Seventh abdominal tergite with the lateral margin gently sinuate .....                                       | <i>Panesthia</i> Serville.    |
| (2) 3. Seventh abdominal tergite with the lateral margin deeply notched anterior to the postero-lateral angle ..... | <i>Ancaudellia</i> Shaw.      |
| (1) 4. Sixth abdominal tergite with the postero-lateral angles backwardly produced .....                            | <i>Miopanesthia</i> Saussure. |

## ANCAUDELLIA SERRATISSIMA Brunner v. Wattenwyl. Text-fig. 31.

*Panesthia serratissima* Br. v. W., *Nouv. Syst. Blatt.*, 1865, p. 394.

Brunner described this species from Ternate. He states that the larvae are completely black, but this is not so, as I have taken them in Papua of the brownish-yellow colour usual to Panesthiine larvae shortly after an ecdysis, and the young larva shows plainly the distinctive character of the genus. The ♂ varies in the depth of the excavated portion of the anterior pronotal margin, and in the prominence of the tubercles bordering it; it also bears on the vertex Saussure's (1895) "dépression en fossette."

*New Localities.*—*S.E. Papua*: Kui-ara (Coll. auct.). *New Guinea*: Katow; *Woodlark Is.* and *New Ireland* (Macleay Mus., Sydney).

## Genus PLANA Brunner v. Wattenwyl.

Key to the species of *Plana*.

- (4) 1. Supra-anal lamina entire.
- (3) 2. Larger, more densely punctate, pronotum more transverse,  
subgenital lamina ♂ less visible ..... *dilatata* Sauss.
- (2) 3. Smaller, smoother, pronotum less transverse, subgenital  
lamina ♂ more visible ..... *robusta* Tepp.
- (1) 4. Supra-anal lamina crenulate ..... *crenulata* Shaw.

## PLANA DILATATA Sauss.

This species and *P. robusta* Tepp. may have been confused by Tepp. himself, but Saussure's (1895) notes (*Rev. Suisse Zool.*) help to clear the matter up. It is a question whether Tepp.'s *robusta* is not Saussure's *dilatata*, and the smaller and smoother species with the more visible subgenital lamina which Saussure calls *robusta* Tepp., and which I have separated as such, may never have been known by Tepp., and should really be Saussure's species also. Saussure (1895) says of *robusta* Tepp. "Mus. Genavense, specimina typica Tepperi." Tepp.'s types ♂ and ♀ in the South Australian Museum are both ♂, and were not indicated by him as his types until 22 years after he had described the species. Until a more critical examination is made of all the material in the South Australian Museum, it is better to leave the matter open.

Var. MAJOR Sauss.—The ♂ is easy to distinguish by the pronotal structure, but the ♀ difficult.

## PLANA CRENULATA, n. sp. Text-fig. 32.

Large. General colour nigro-castaneous dorsally, rufo-castaneous ventrally. Head smooth, nigro-castaneous, covered by the pronotum; margin of the clypeus tawny; antennae of ♂ (♀ damaged) castaneous, 1st segment longer than the two succeeding segments. Pronotum (Text-fig. 32) nearly semicircular, postero-lateral angles rounded, and posterior margin convex; behind the anterior margin in both sexes is a tumefaction forming two prominent tubercles in the ♂, but only slightly raised and rounded in the ♀, further caudally is a depression succeeded by ridges meeting in the middle line, rough and broken up in the ♂, but smooth in the ♀, and bounded by two deep sulci converging caudally; the posterior half of the pronotum is smooth in the ♀, but occupied by a large median diverticulum extending to within 2 mm. of the posterior margin in the ♂. Mesonotum and metanotum smooth, rufo-castaneous in the disc, with the postero-lateral angles somewhat backwardly produced. Abdominal tergites 1 to 5 smooth in the disc, the outer  $\frac{1}{4}$  on each side being sparsely but coarsely punctate; 6th tergite punctate along the caudal margin; 7th tergite and supra-

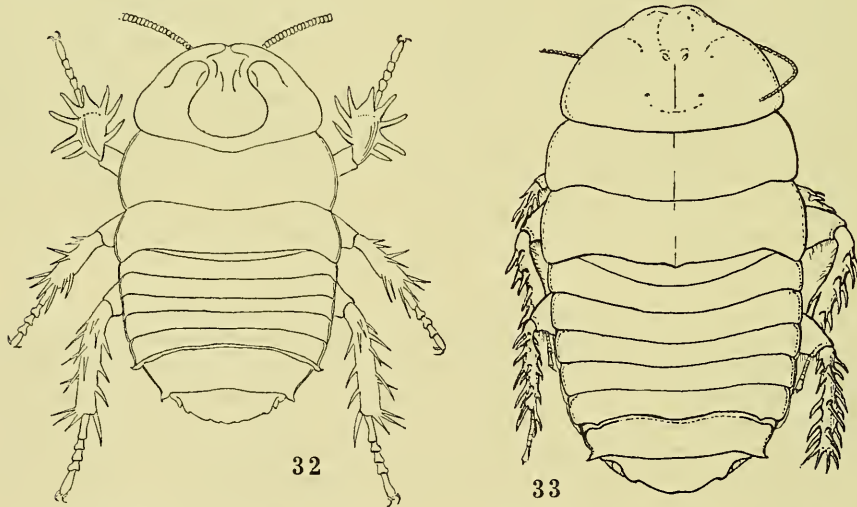
anal lamina densely and coarsely punctate; the postero-lateral angles of tergites 2 to 7 backwardly produced, that of the 6th being produced into a strong prominent recurved spine, and that of the 7th tergite being divergent and but slightly recurved; the outer portion of the caudal margin of tergites 4, 5, and 6 is thickened, and crenulate, and the plane of tergite 7 is bent at a considerable angle to that of the tergites anterior to it. Supra-anal lamina transverse, caudal margin rounded, crenulate. Abdominal sternites with the disc smooth, rufo-castaneous, margins punctate and darker. Legs rufo-castaneous, tibiae darker, anterior tibiae fossorial, anterior femora bispinose. The holotype has a group of three spines—one of them small—on the right anterior femur; the coxal process (Shaw, 1922) appears to be completely separated from the coxa, as in all the *Panesthiinae*.

*Length*.—♂, 50.0 mm.; ♀ 45.5 mm.

*Type material*.—Holotype ♂, No. 0/2861; and allotype ♀, No. 0/2861a, Coll. Q. Mus.

*Habitat*.—Queensland: Noosa Head (H. A. Longman, R. L. Higgins).

*Note*.—This fine species I at first mistook for *P. gigantea* Tepp. (q.v.), but an examination of his types undeceived me. The peculiar structure of the caudal margins of the distal tergites is of a like character, but more marked in *Macropanesthia gigantea* Tepp. (= *M. muelleri* Sauss.) and under that species an attempt is made to explain it. In addition to my types, I know of only a single ♂ in the Queensland Museum.



Text-fig. 32. *Plana crenulata* Shaw. ♂. Outline of whole insect (nat. size). Drawn from the holotype.

Text-fig. 33. *Macropanesthia hirsuta* Shaw. ♂. Outline ( $\times \frac{3}{2}$ ). Drawn from the holotype.

#### Genus HEMIPANESTHIA SAUSSURE.

*Hemipanesthia* Sauss., Revision des Panesthiens, *Rev. Suisse Zool.* iii, 2, 1895, p. 327.

## HEMIPANESTHIA KRAUSSIANA Saussure.

*H. kraussiana* Sauss., loc. cit., p. 328, Pl. ix, fig. 6.—*Panesthia kraussiana* Sauss., *Mem. Soc. Sc. Phys. Nat. Genève*, xxiii, 1872, p. 150.

Saussure described this species from the neighbourhood of Melbourne, and the type is in the Geneva Museum. The Macleay Museum collection contains 1 ♂, 1 ♀ (Rockhampton) and 2 larval ♀ (N. S. Wales). Of these the ♂ measures 32 mm., the ♀ 37 mm., and the larvae 24 mm., and 26 mm. in length. The ♀, except for being larger, agrees well with Saussure's description, in which the ♀ only is mentioned, although his figure and the explanation of the plate are marked ♂. If Saussure knew the ♀ only, the designation of his figure is an error, the ♂ in the Macleay Museum would be the allotype, and I tentatively regard it as such. A few notes of the ♂ are added.

The ♂ closely resembles the ♀, but the anterior margin of the pronotum is not emarginate, nor tuberculate, and is more definitely reflexed; the discal irregularities are considerably more marked, a well defined trifoliate excavation with a tubercle on each side occupying the middle third of the disc. The posterolateral angles of the 7th abdominal tergite are of the same form as in the ♀. The supra-anal lamina has its posterior margin slightly crenulate in the middle third (in the ♀ this is more marked, agreeing with Saussure's figure). Anterior femora 3-spinose. The larva closely resembles the adult, and also has the anterior femora 3-spinose.

*Type material*.—Allotype ♂, Macleay Mus., Sydney.

*Habitat*.—Queensland: Rockhampton; N. S. Wales.

## Genus MACROPANESTHIA Saussure.

## MACROPANESTHIA GIGANTEA Tepp. (♂ only).

*Geoscaphus giganteus* Tepp. (♂ only), *Trans. Roy. Soc. S. Aust.*, 1894, p. 176. *Macropanesthia muelleri* Sauss., *Rev. Trib. Panesth.*, *Rev. Suisse Zool.*, 1895, p. 329, Pl. ix, fig. 5.

I have examined Tepp. types of *G. giganteus* in the South Australian Museum. These are labelled "Type of ♂" and "Type of ♀"; they agree in the main with his description and measurements, but both are of the male sex, and they are not of the same species. His "Type of ♂" must stand as the holotype of the species, and Saussure's *Macropanesthia muelleri*, which is identical with it, becomes a synonym. Tepp. "Type of ♀" is really a ♂ of *Macropanesthia rhinocerus* Sauss., and Tepp. name for it, already occupied by another species, must go down as a synonym of Saussure's. The confusion may be due to Tepp.'s late indication of his types, and it is very improbable that when Saussure described *muelleri*, also from a ♂, he had seen Tepp.'s excellent description of it published a year previously.

In many of the *Panesthiinae* the 7th abdominal tergite and supra-anal lamina are bent downwards more or less sharply, their plane joining that of the proximal tergites at an angle, and presenting an extensive surface posteriorly. This surface is usually coarsely and densely punctate, and is frequently furnished around its borders with strong spines and crenulations. On account of this bending, the posterior margin of the sixth tergite becomes more prominent, is sometimes simply everted, but is more frequently also armed with crenulations or dentations, or, as in the present species, with a row of strong tubercles, in some examples almost spines, repeated, but less prominently, on the 5th and 4th tergites. *Plana crenulata* mihi shows these crenulations very well. *P. dilatata* Sauss. and his var. *major* also have them, but not *robusta* Tepp. In the genus *Panesthia*

several species such as *lata* Walk. and *sloanei* mihi show this armature in some degree; whilst *Hemipanesthia kraussiana* Sauss., which does not possess it, is of more depressed form, and may not be an earth digger. *Salganea morio* Burm. has the posterior margin of the 6th tergite entire, but the 7th makes up for this by being crumpled and having dentate lateral margins. I have kept specimens of the present species alive for several months in glass jars of sand, watched them going underground, and the whole apparatus seems to be most effective as an aid to the insects in burying; the abdominal somites are retracted, the smooth anterior portion of each sliding up beneath the preceding one, and the shortened abdomen with its posterior end, shaped and armed for the purpose, takes a good purchase against the collapsed back and sides of the burrow, thus enabling the fossorial tibiae and scoop-like anterior part of the pronotum to do their work, and to be thrust forward when the way is prepared.

As the ♂ only has been described, and I have several ♀ in my collection, I have selected one as an allotype, and add a few notes upon it.

♀. Much resembling the ♂, but the pronotum is relatively wider, the anterior margin is gently recurved medially, and slightly tumefied, but not tuberculate; the excavation of the disc is not so pronounced, and the portion of the disc behind the converging sulci is not excavated. The armature of the distal abdominal tergites is similar to that of the ♂. Supra-anal lamina with definite crenulations in the middle of the posterior margin. Anterior femora 2-spinose.

*Length*.—♂, 35.0-39.0 mm. (Allotype, 38.5 mm.).

*Type material*.—Allotype ♀, No. 0/2862, Coll. Q. Mus.

#### MACROPANESTHIA RHINOCERUS Saussure.

*Macropanesthia rhinocerus* Sauss., Revis. Trib. Panesth., *Rev. Suisse Zool.*, iii, 1895, p. 329, Pl. ix, fig. 4.—*Geoscapheus giganteus* Tepp. (♀ only), *Trans. Roy. Soc. S. Aust.*, 1894, p. 176.

Saussure described the ♂ from Bowen, Queensland, and Tepper's "Type of ♀" of his *Geoscapheus giganteus* is really a ♂ of *M. rhinocerus* Sauss., sent to him from North Queensland by Mr. C. French. The National Museum, Melbourne, has two damaged specimens with no locality labels, and the Macleay Museum, Sydney, has a larval ♀ from Cleveland Bay, and this, the neighbourhood of Townsville, is the district from which *rhinocerus* may be expected.

#### MACROPANESTHIA HIRSUTA, n. sp. Text-fig. 33.

♂ nigro-castaneous, except the disc of the abdominal sternites and portions of the legs, where the colouring is of a rich castaneous. Head finely punctate, margin of the clypeus and base of the labrum brownish. Pronotum anteriorly produced, covering the vertex, finely punctate and crumpled, two prominent tubercles with their apices recurved situate within the anterior margin, disc excavated, the excavation extending backwards to within 1 mm. of the posterior border. Meso- and metanotum laterally finely punctate. Abdominal tergites 1 to 6 laterally sparsely coarsely punctate; tergite 7 and supra-anal lamina coarsely punctate; postero-lateral angles of the 6th tergite not produced, but a large, erect, blunt tubercle is situate 2 mm. along the posterior margin; postero-lateral angles of the 7th tergite produced into strong divergent recurved spines; abdominal sternites coarsely punctate laterally. Anterior femora 2- or 3-spinose. Legs densely hirsute where they may come into contact with the body or with one another.

*Length*.—42 mm.

*Type material*.—Holotype ♂, S. Aust. Mus.

*Habitat*.—Queensland: Dalby (Mrs. F. H. Hobler).

*Note*.—The hairiness from which this species is named, is more abundant than in any other of the Panesthiinae known to me. It is more abundant in the group which live underground entirely (Tepper's Geoscapheusidae) than in those which live in rotten wood, and probably acts as a tritürating agent to break up sticky soil, leaving the leg movements unimpeded.

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